VOL. XLIII. No. 3 MARCH 1958

MECCANO MAGAZINE



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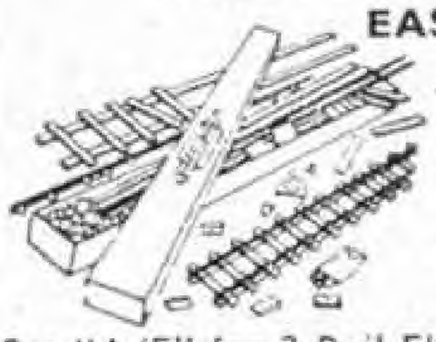
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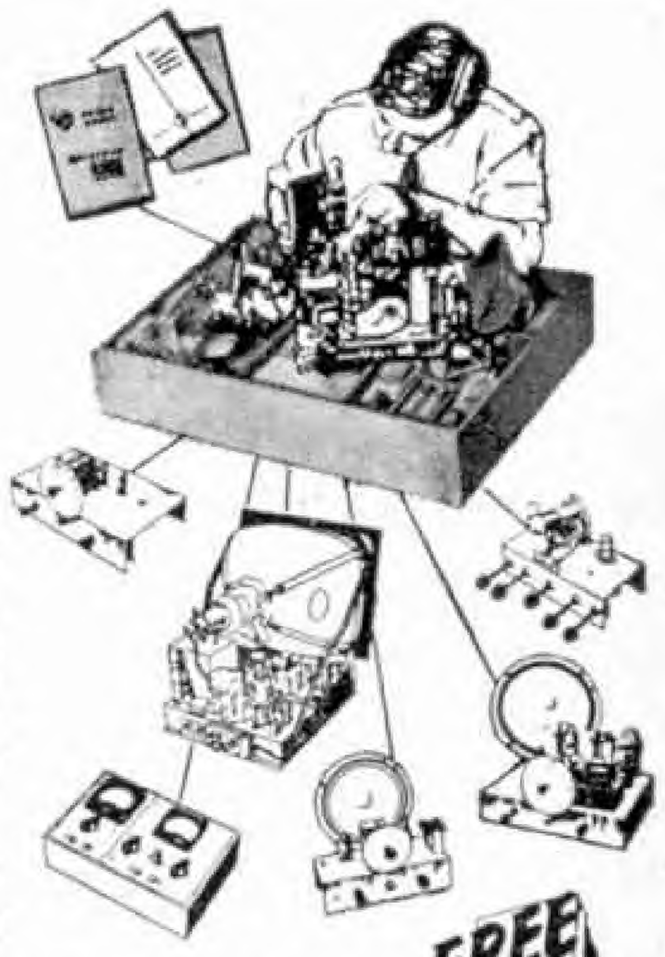
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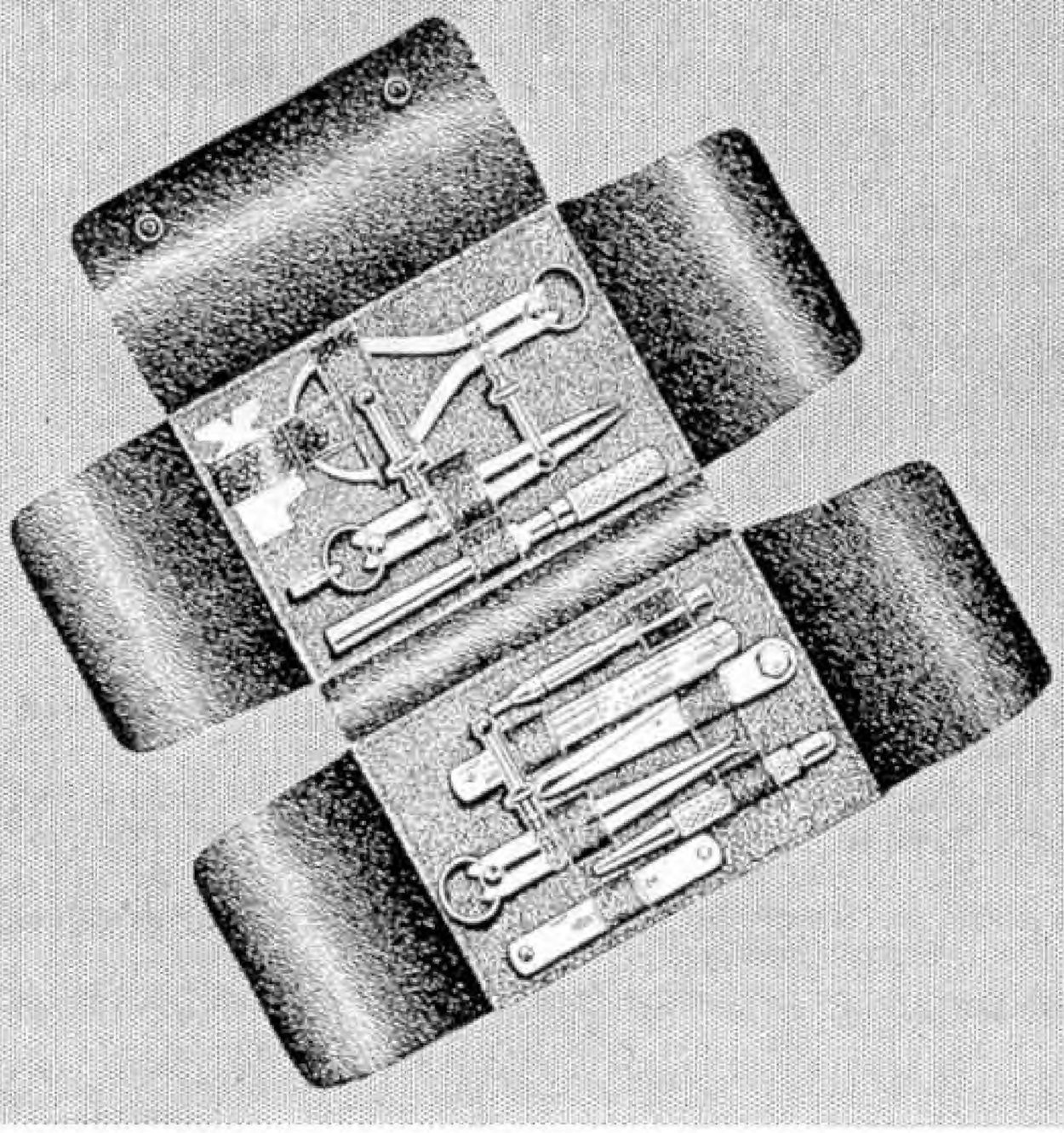
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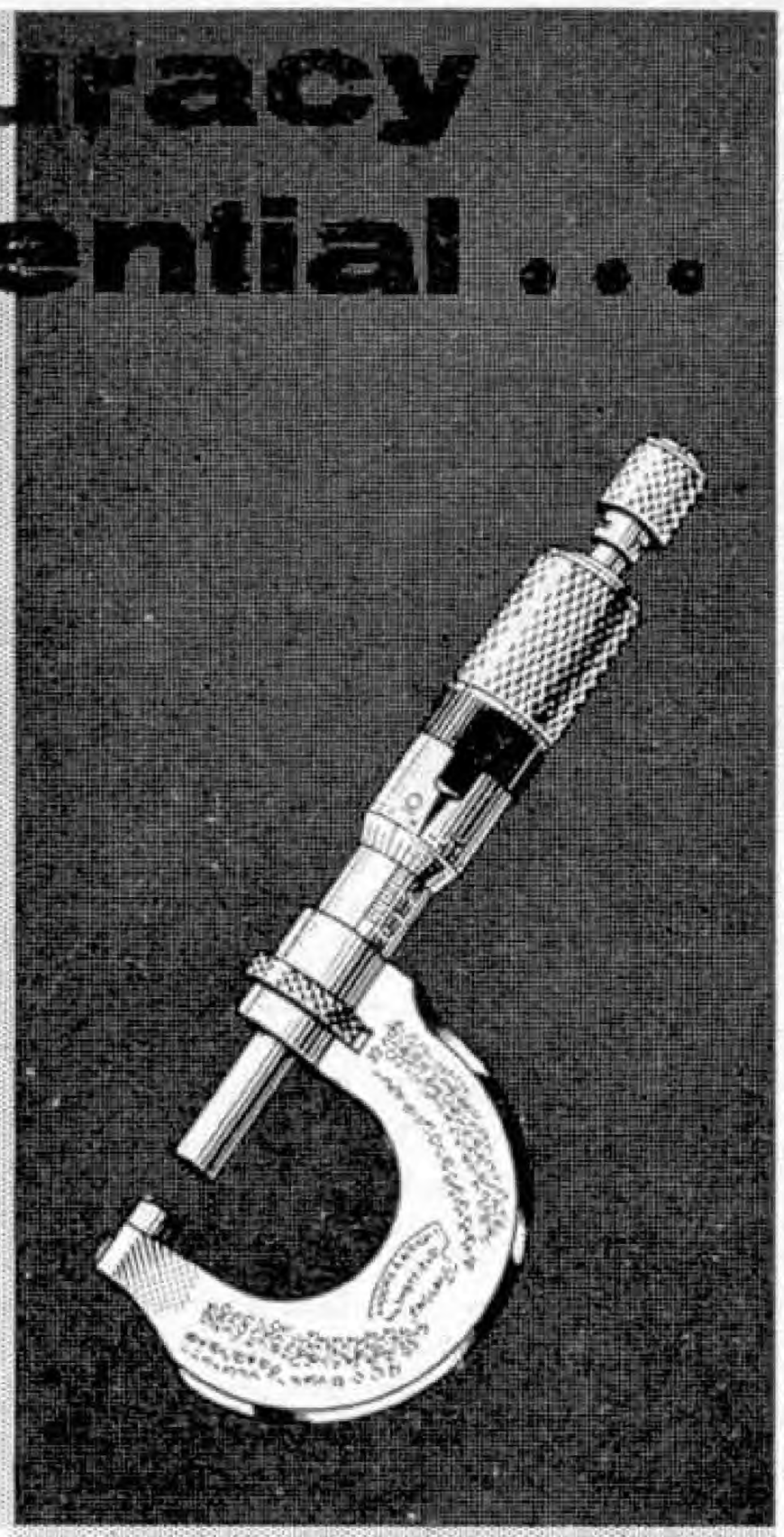
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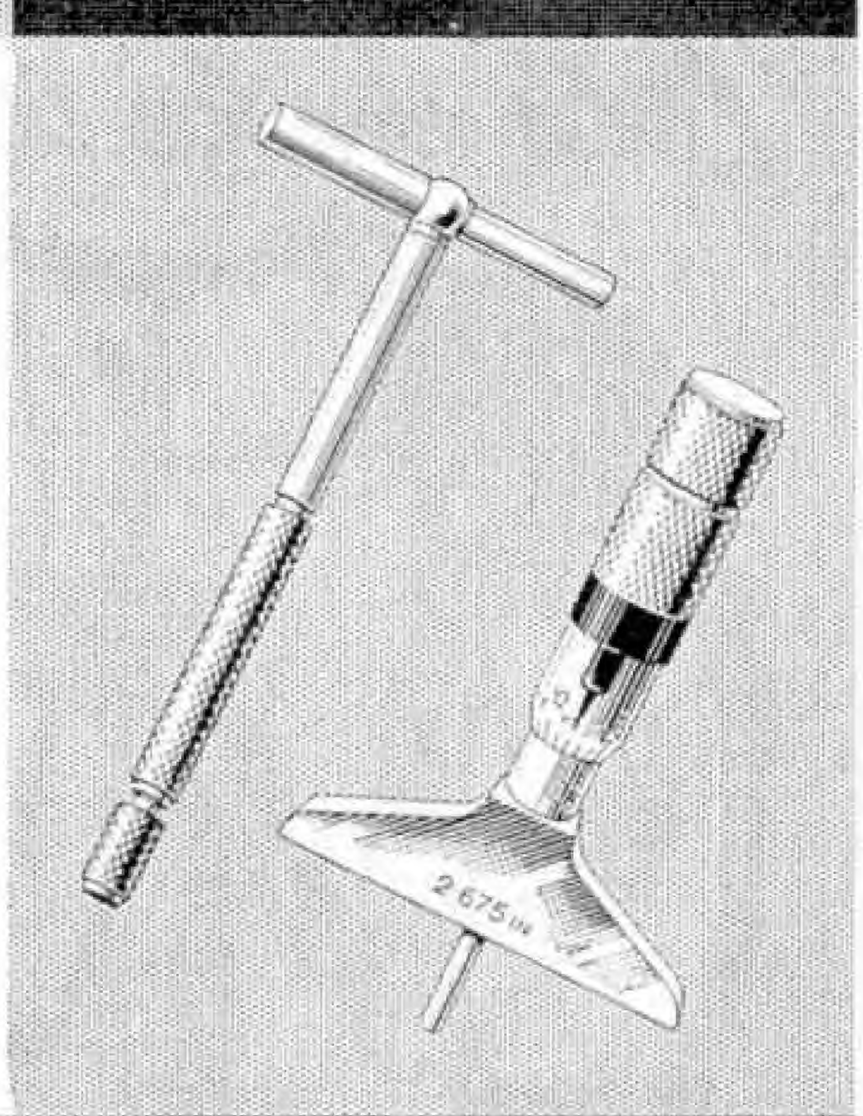
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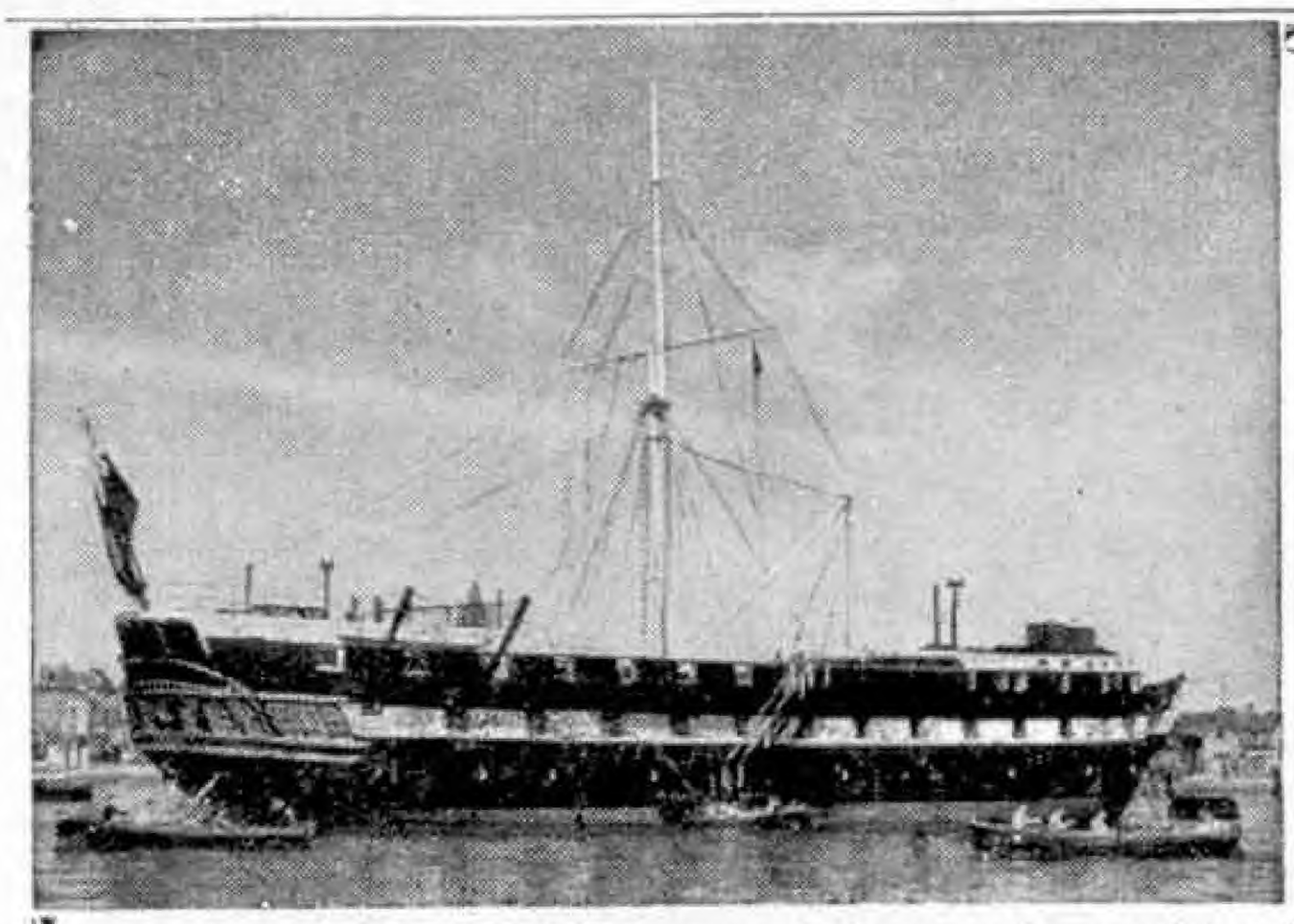
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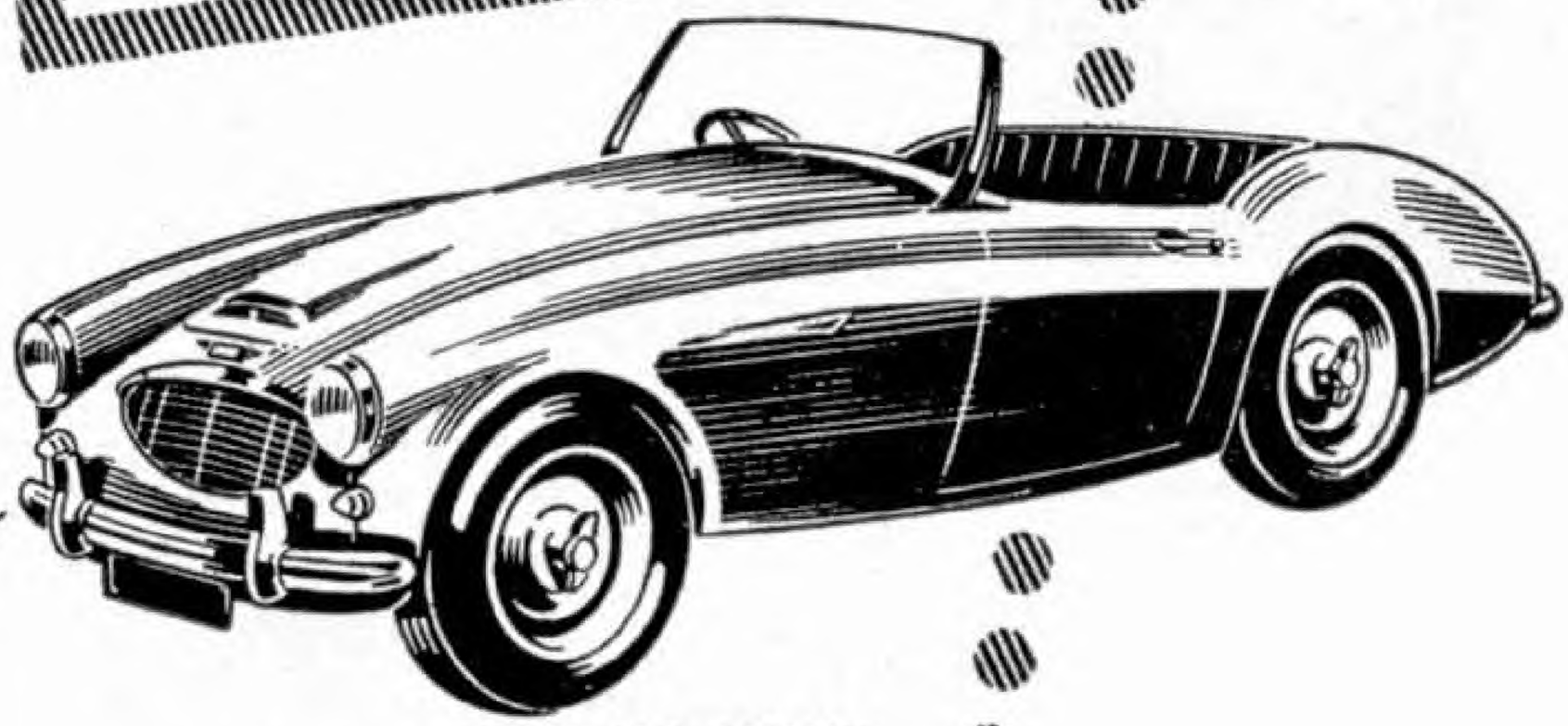
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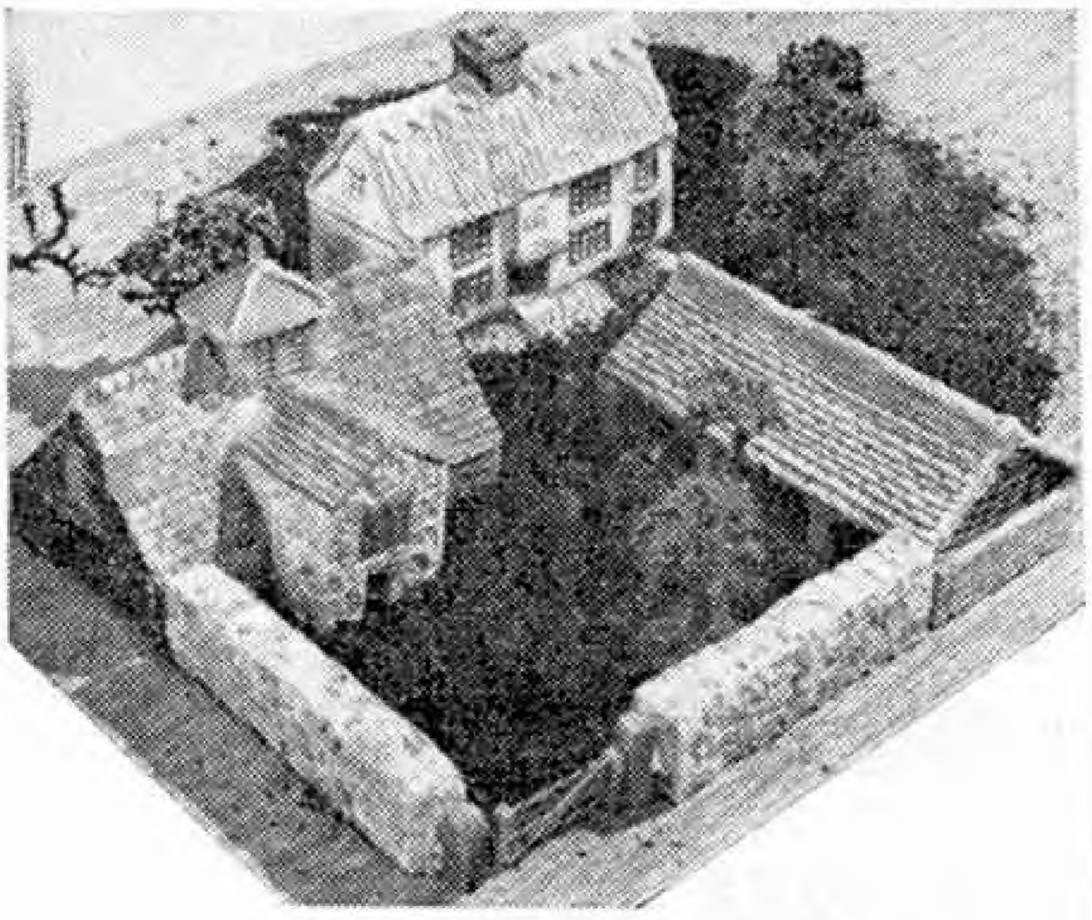
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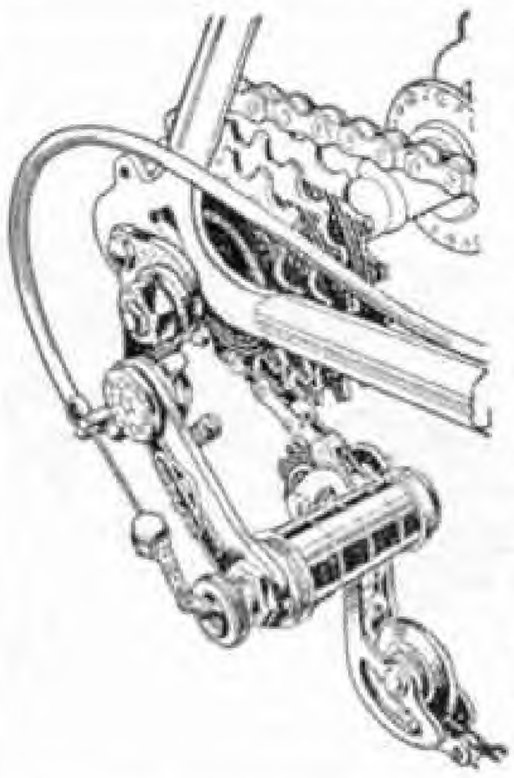
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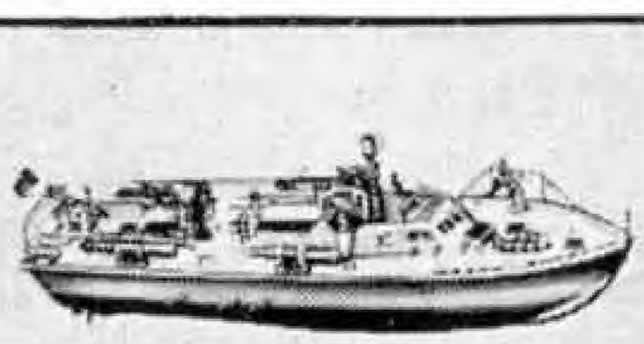
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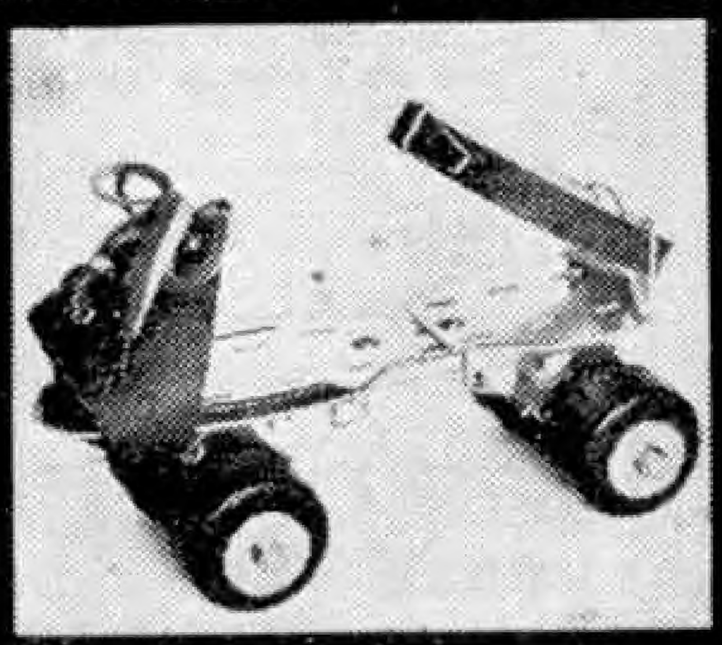
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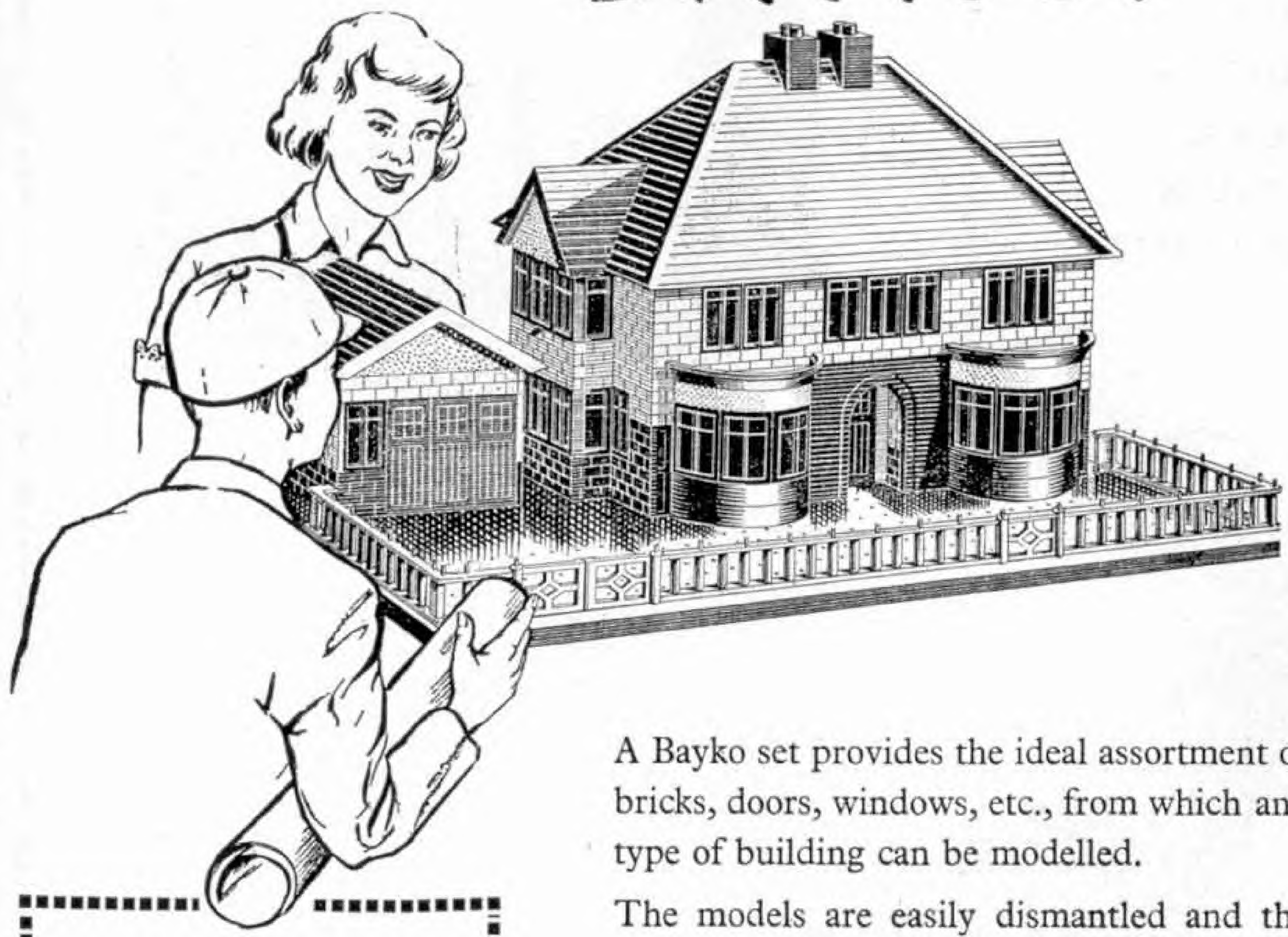
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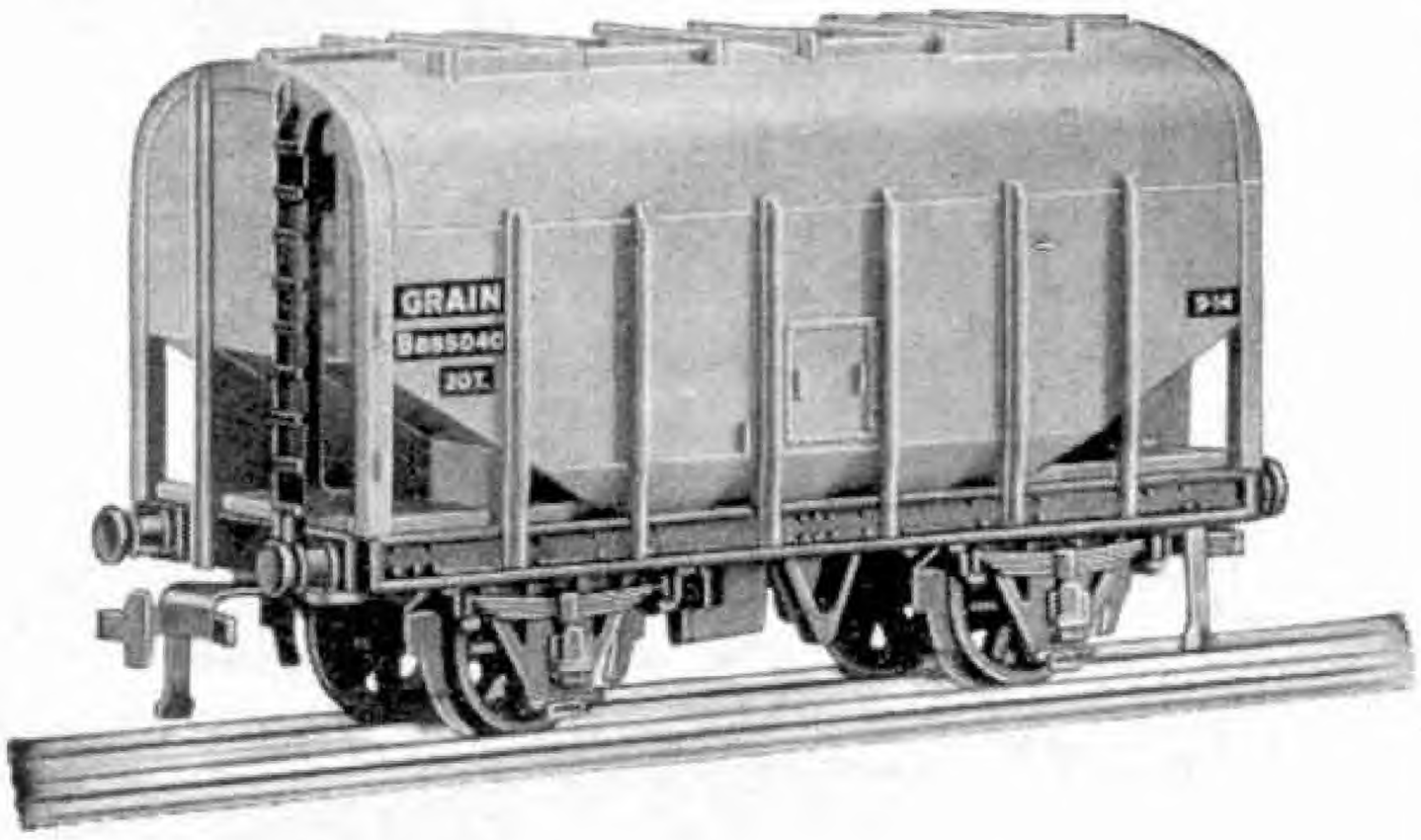
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EDITOR : FRANK RILEY, B.Sc.

Vol. XLIII
No. 3
March 1958

A Chance for Photographers

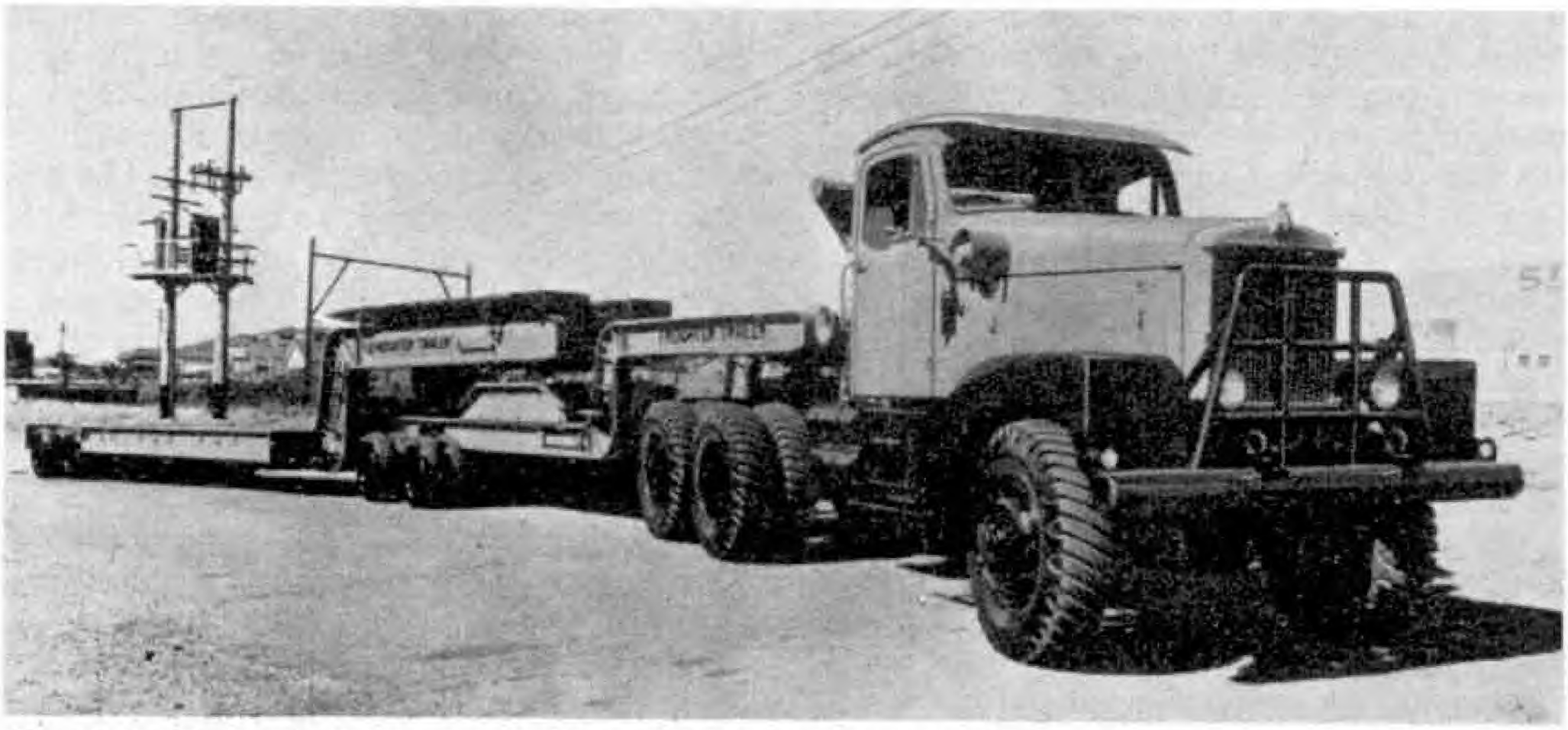
Well, now you have seen the Talyllyn Railway cover. I hope you like it. Those of you who have visited the railway will realise at once that it is a really happy picture of the line at Dolgoch. It is based on a splendid photograph taken by Mr. S. Creer, who has contributed many fine railway photographs to the *M.M.*, and it certainly conveys something of the spirit of the line, and of the splendid results of the efforts of the band of enthusiasts who have restored it to working order.

Those of you who have not yet visited the part of Wales through which the line runs have a delightful experience in store. I hope that many of you will enjoy a run on this unusual railway.

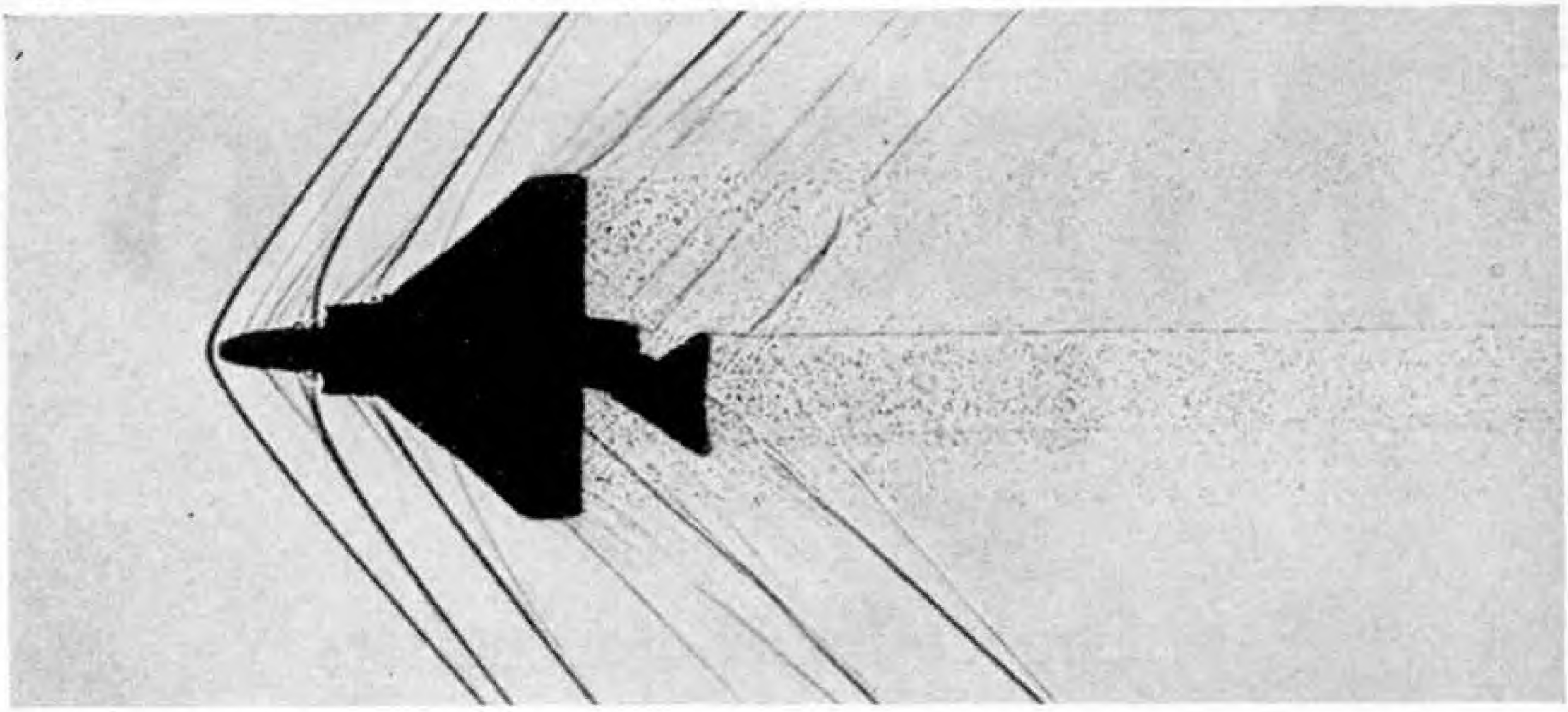
The Talyllyn must be a boon to amateur photographers as well as to those who are experts. I have myself seen hundreds of pictures taken on the line, and I am sure there are many more, including not a few taken by *M.M.* readers. I should like to see some of your efforts, so to encourage you to send them along I will give small prizes to the *M.M.* readers who send in the best three Talyllyn Railway photographs. You can send in your entries at any time between now and 31st August next.

This does not mean that the photographs you enter in the contest must be taken this summer. Pictures taken in past years are eligible for entry, as well as those taken during the 1958 season. By the way, when taking photographs, be careful to keep clear of the trains and to avoid interfering with operations, and remember to put your names and full addresses on the backs of your prints.

The Editor



Here is the biggest truck ever to go to Queensland, Australia. It is a Scammell Constructor which draws two low-loader semi-trailers, the overall length being more than 80 ft. The truck hauls heavy equipment from Townsville Harbour to the site of the Tully Falls hydro-electric scheme.



Dinky Toy Flies Faster than Sound!

Shock Waves from the Gloster Javelin Delta Fighter

MANY of you have seen pictures like two of those on these pages, and will recognise them as shadow photographs showing the wave systems produced in the atmosphere by an aircraft in flight. Some of you may have realised that the aeroplane in these pictures is not a real one at all! It is in fact a Dinky Toys Gloster Javelin Delta Wing Fighter, No. 735, and the interesting thing is that it is actually in free flight at the Mach number of 1.4.

The Mach number is the ratio of the speed of the aircraft to that of sound in undisturbed air. As in this instance it is well over one, it is clear that the Gloster Javelin in the pictures has broken through the sound barrier! And it has done it very thoroughly, for its speed was about 1,500 feet per second, while that of sound in air is approximately 1,100 feet per second.

The photographs were taken at the Aeroballistics Range of the Canadian Armament Research and Development Establishment at Valcartier, Quebec, Canada. This range is used for aerodynamic tests of model shell, rockets, guided missiles and aircraft. Recently a test launching was made as a demonstration of the techniques employed, and it was in this test that the Dinky Toys Gloster Javelin was used. During this trial photographs were taken from which the two illustrations referred to have been reproduced, by courtesy of CARDE.

The Dinky Toys Gloster Javelin model was prepared for use in these tests by filing off the landing gear, so that the model represented the flight arrangement of the miniature aircraft. The modified Dinky Toy was then fired from a small bore gun with a bore diameter of $3\frac{1}{8}$ in., which was actually made by removing the rifling from a 17-pounder anti-tank gun.

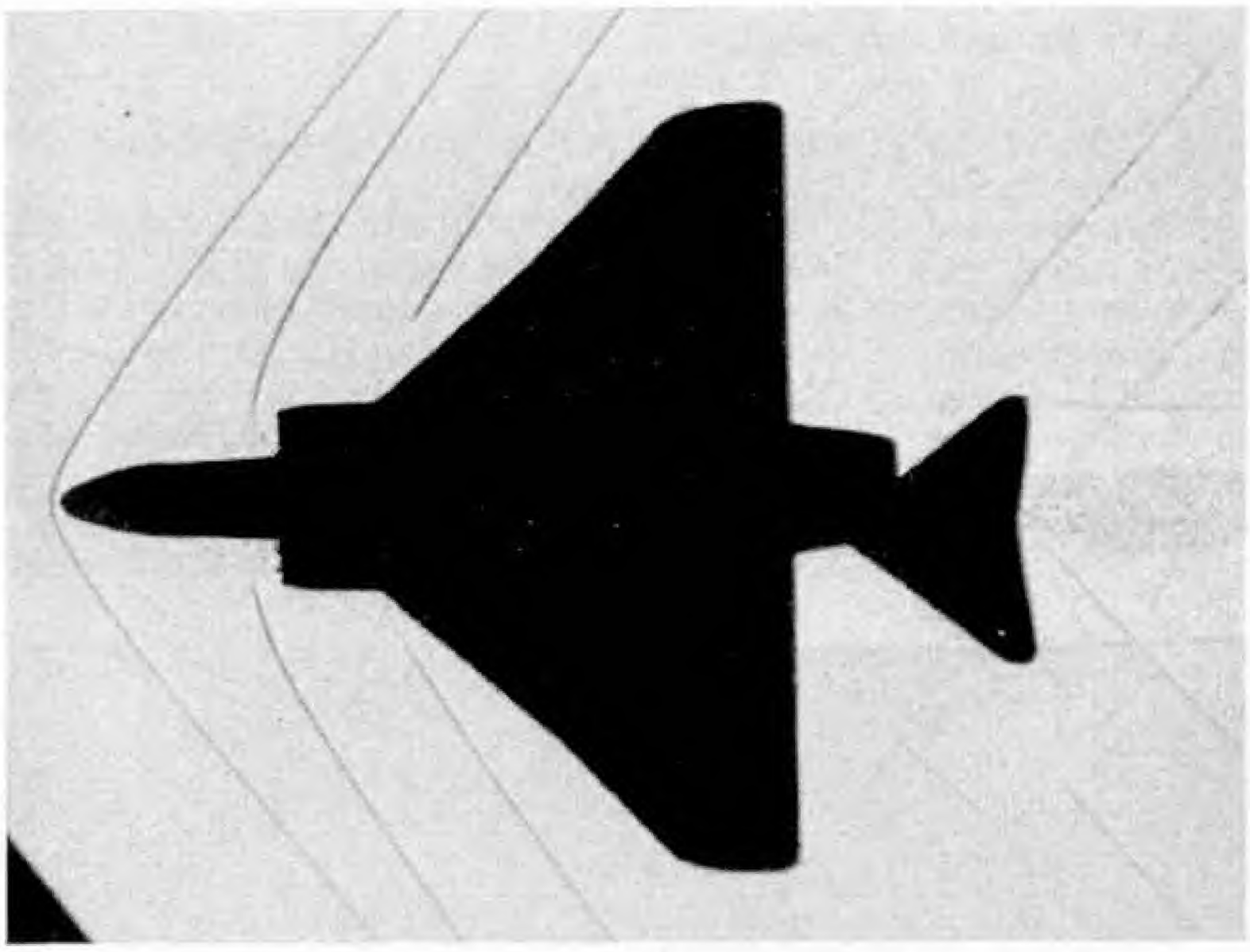
While in the gun the model was carried in a "sabot." This is a special device, the outside surface of which fits the gun bore, while the inside surface fits the model. It is used in tests of this kind for two purposes in addition to giving the model aircraft the desired speed. One of these is to provide the necessary base for propelling the model, as the Dinky Toys aeroplane could not fit the gun bore exactly; the other is to protect the Dinky Toy from the hot gases produced on firing the gun. On emerging from the gun the sabot falls away behind and sideways, leaving the model to fly on alone.

The model was photographed while in free flight by means of a "shadowgraph" optical system. This method shows up disturbances in the air caused by the model flying through it, in much the same way as hot air rising from a stove is made visible by the shadows it throws in a beam of sunlight, although in the one case the air disturbances are caused by the physical motion of the model through the air and in the other by differential heating.

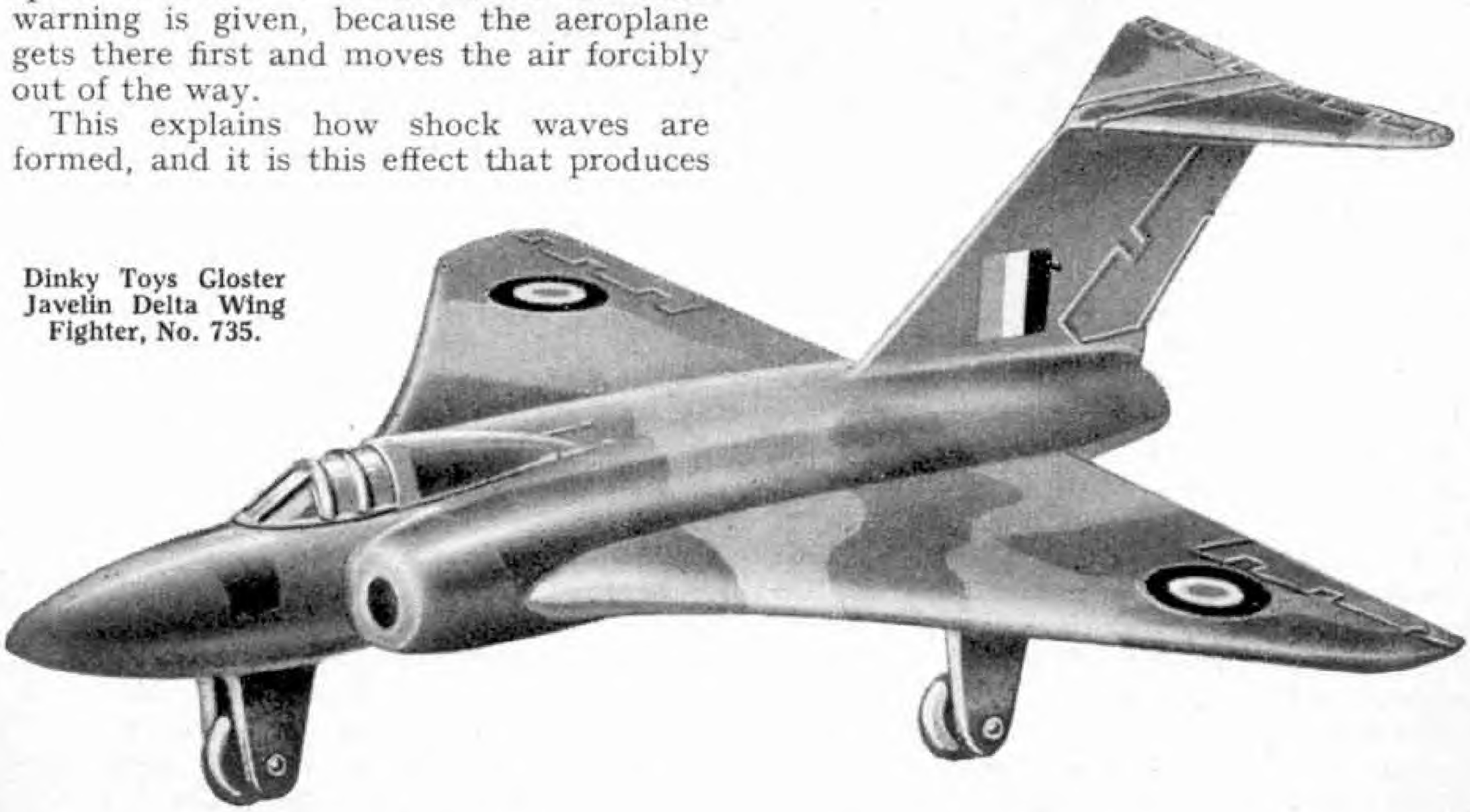
The photographs show the model in

flight at about 1,500 ft. per second, as already noted, which is roughly 1.4 times the speed of sound. The air disturbances made visible by the method of photography used are of course the waves created in the air by the passage of the aircraft through it. When an aeroplane is in flight at speeds less than that of sound, the air in front of it gets advance warning from the pressure waves sent ahead. These waves move with the speed of sound, and form streamlines, moving the air out of the way. When the speed is above that of sound no such warning is given, because the aeroplane gets there first and moves the air forcibly out of the way.

This explains how shock waves are formed, and it is this effect that produces the sonic boom when an aircraft passes through the sound barrier. In our illustrations, with the Dinky Toys aircraft flying steadily at a speed above that of sound, the shock waves can be seen just ahead of the nose of the fuselage in the pictures.



One particularly striking fact of immense interest to all Dinky Toys enthusiasts emerged from this remarkable application of a Dinky Toys aeroplane. This was that from observations all along the range it was concluded by the observers that the Dinky Toys Gloster Javelin Delta Wing Fighter is a good stable aircraft, and that it flew well at its supersonic speed. This is indeed a wonderful testimony to the design of the model itself and to the magnificent finish of the fuselage and wings. The Dinky Toys aircraft in fact flew at its unaccustomed speed above that of sound in much the same efficient way as a real aeroplane expressly designed for supersonic flight.



Dinky Toys Gloster Javelin Delta Wing Fighter, No. 735.

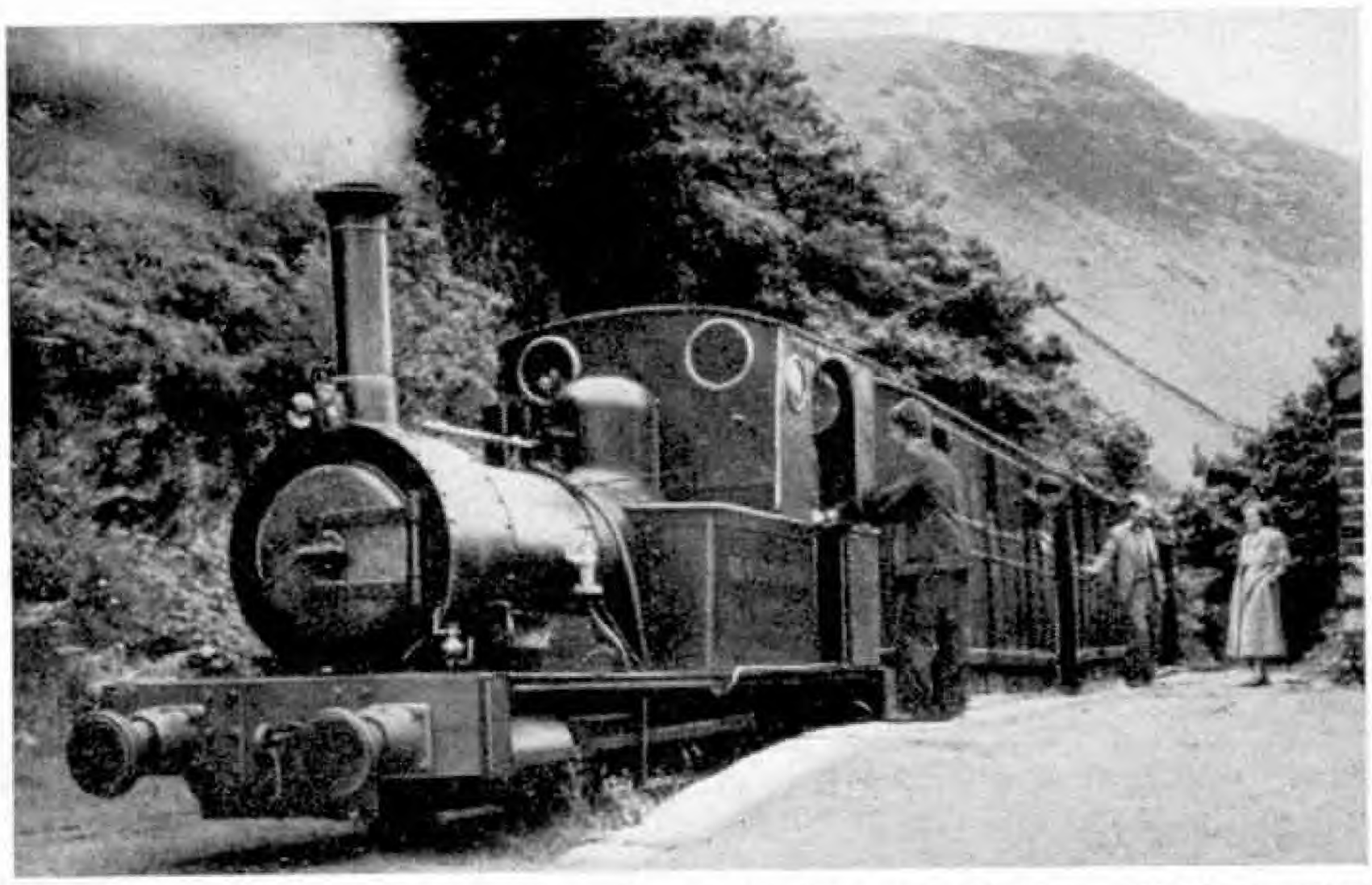
Enchantment for Three Shillings

The Story of the Tal-y-Llyn Railway

By P. B. Whitehouse

THE land through which this little railway runs is one of lonely beauty. It lies in West Wales, between the estuaries of the Dovey and the Mawddach, where the mountains sweep gracefully down towards the sea and beaches of soft brown sand. There 92 years ago, in the reign of Queen Victoria, this railway was built on the hillside to live on into the future and to give almost a century of unbroken service to the community.

As with so many other narrow gauge lines, the Tal-y-Llyn Railway was linked with slate, and its own Act of Parliament of 1865 authorised the Railway to be built to a gauge of 2 ft. 3 in. from the Quarry of Bryn Eglwys, near to the village of Abergynolwyn, to the coast at Towyn, 7 miles distant. It was never a wealthy railway, following an eventful and precarious existence and making do with the minimum of expenditure, and surviving by extraordinary economy.



Abergynolwyn Station, the present terminus of the Tal-y-Llyn Railway. The locomotive of the train halted there is "Dolgoch."

As year followed year the shrill whistle of either of the Railway's two locomotives, *Talyllyn* and *Dolgoch*, would echo and re-echo across the deep valleys, warning both the local people and the tourists alike that the self-important Lilliputian train was on its way. It was as much a part of the Welsh country scene as the mountains or the waterfalls, the sheep or the slate built walls.

Though the disasters of two wars had little outward effect on the Tal-y-Llyn Railway, the changing conditions of their aftermath did much to alter the character of its traffic. Slate was king when it was born, but after the second decade of the 20th century there were serious and cheaper rivals, so traffic declined.

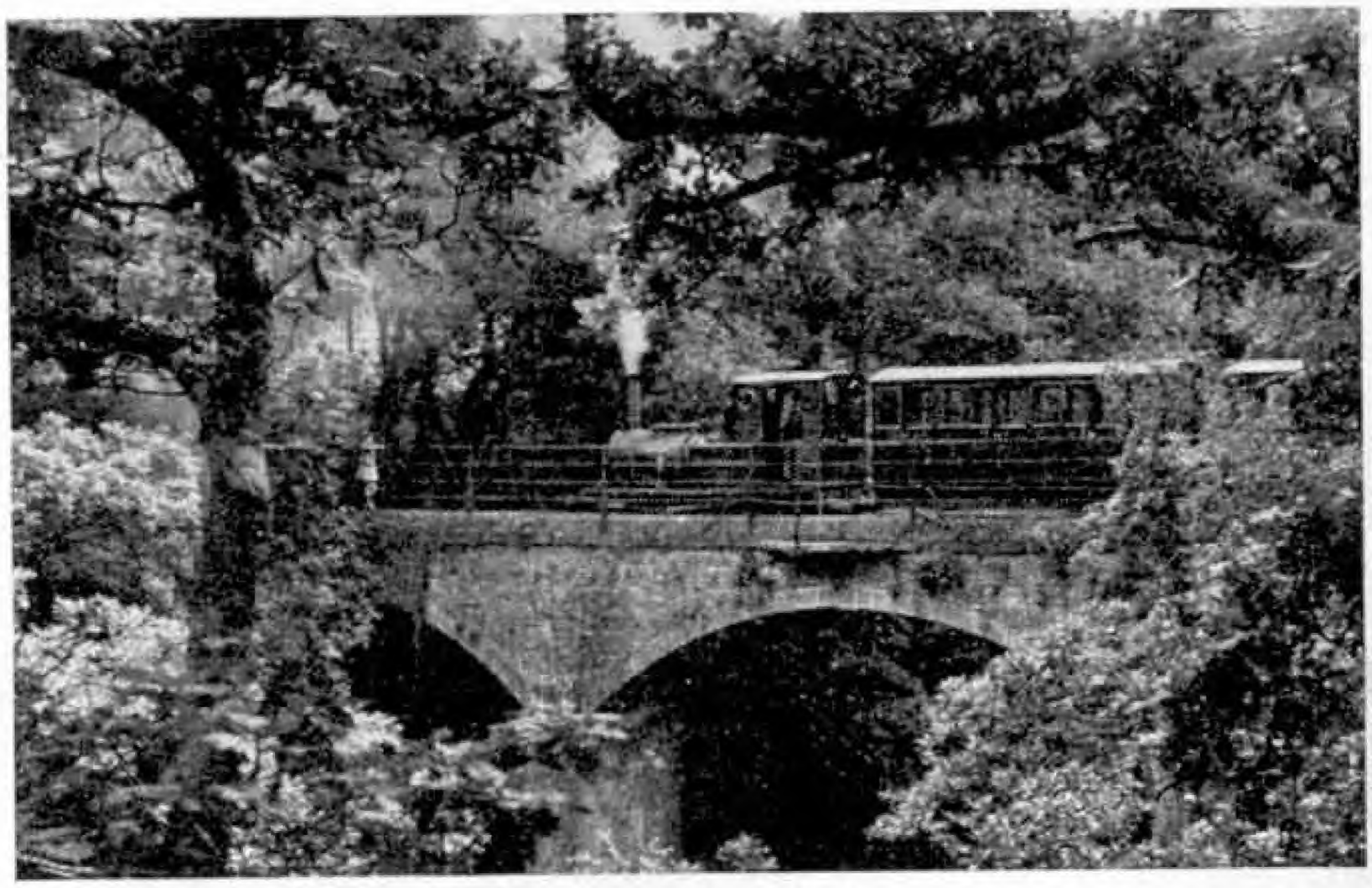
The years that followed the second World War soon gave the "coup de grace" to the Bryn Eglwys Quarry and indeed, to the Tal-y-Llyn's wealthier and larger neighbours, the Festiniog Railway and the Corris Railway—both lines of great charm and character. This was a sorry story. It was due solely to its ageing, single shareholder, Manager and Secretary that a similar last chapter was not written in connection with the Tal-y-Llyn Railway. He was Sir Henry Haydn Jones, one time M.P. for Merioneth and a great character and land-owner, and he proclaimed that *his* Railway would continue to run as long as he lived. It did, but the locomotives, the rolling stock and the track paid the price through lack of cash and maintenance.

In July 1950 Sir Haydn died and for a time it seemed certain that at the end of the summer season the Tal-y-Llyn Railway would follow the others into limbo; but it did not. And the years that followed have been years full of adventure for those who helped to save it by forming the Talyllyn Railway Preservation Society. In this

connection the generosity of Lady Haydn Jones must always remain on record, for she readily agreed that all the shares of the Railway be handed over to a Holding Company and that the Society appoint three Directors to this and to the Tal-y-Llyn Railway Company, while the executors of Sir Haydn appointed two to each.

What is this Society and what does it do? It has brought new life to the old Railway, yet has retained its essentially Victorian character. It has ensured that the regular summer train service has never ceased to run, and in contrast to the sad story of the ever increasing closure of nationalised branch lines, succeeded in bringing more traffic to the line and more and more people to the lovely valley every year. In 1951 the previous season's revenue was doubled, and during 1957 well over 55,000 people travelled over the line in the months between June and the end of September —a remarkable achievement.

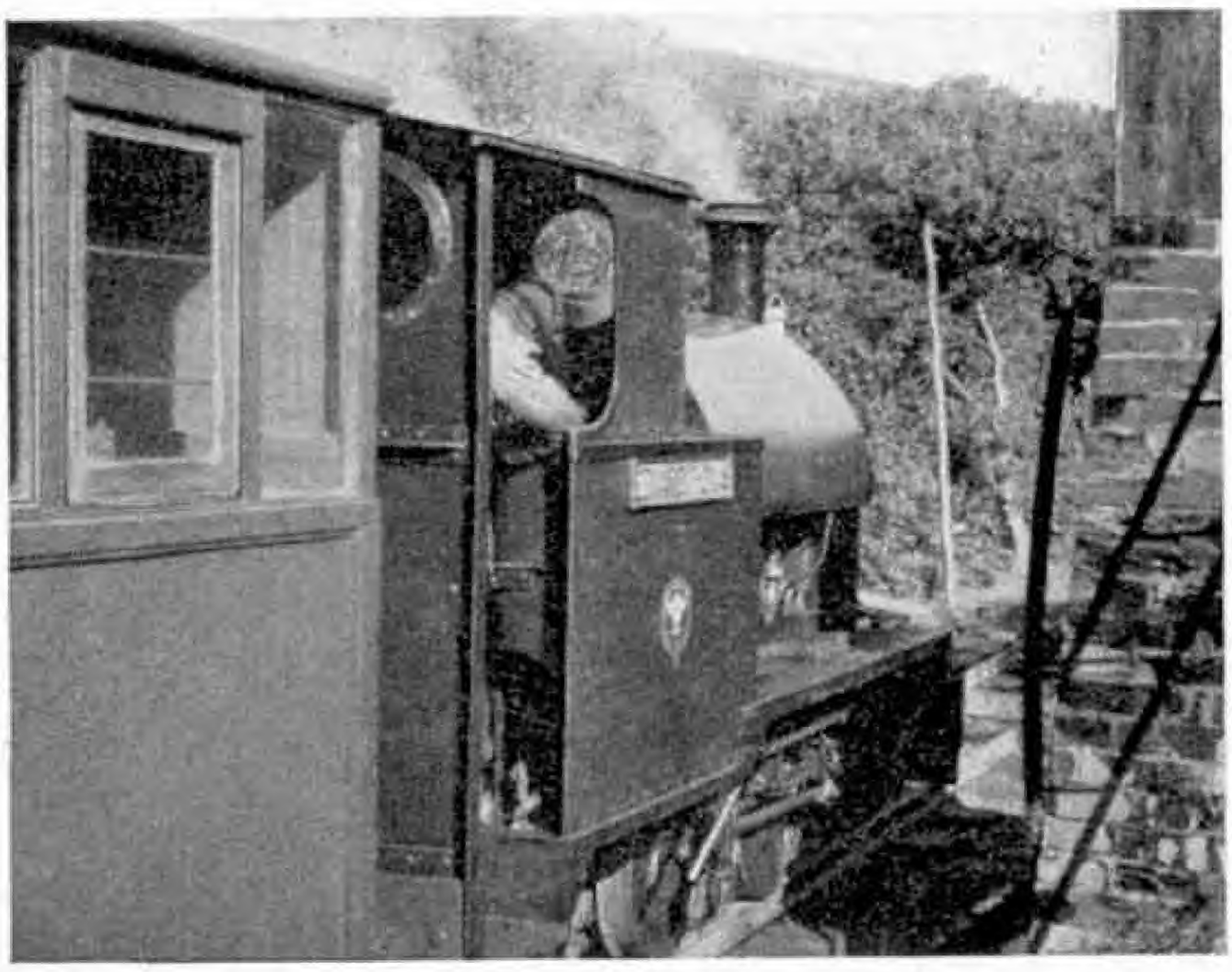
Throughout that 1951 season the traffic had to be worked entirely by the 88 year old locomotive *Dolgoch*, her sister engine by that time being completely worn out. It was a tribute to the long defunct firm of Fletcher Jennings and Co., who made her, that she responded so nobly, but it was obvious that this one locomotive and four ancient coaches could not handle the expanding traffic. So the Society has stepped into the breach and presented the Railway Company with three additional locomotives and new passenger rolling stock. Two of the locomotives came from the neighbouring Corris Railway, fortunately of the same gauge as the Tal-y-Llyn, and a third was a donation to the Society by a sympathetic engineering firm from the Midlands.



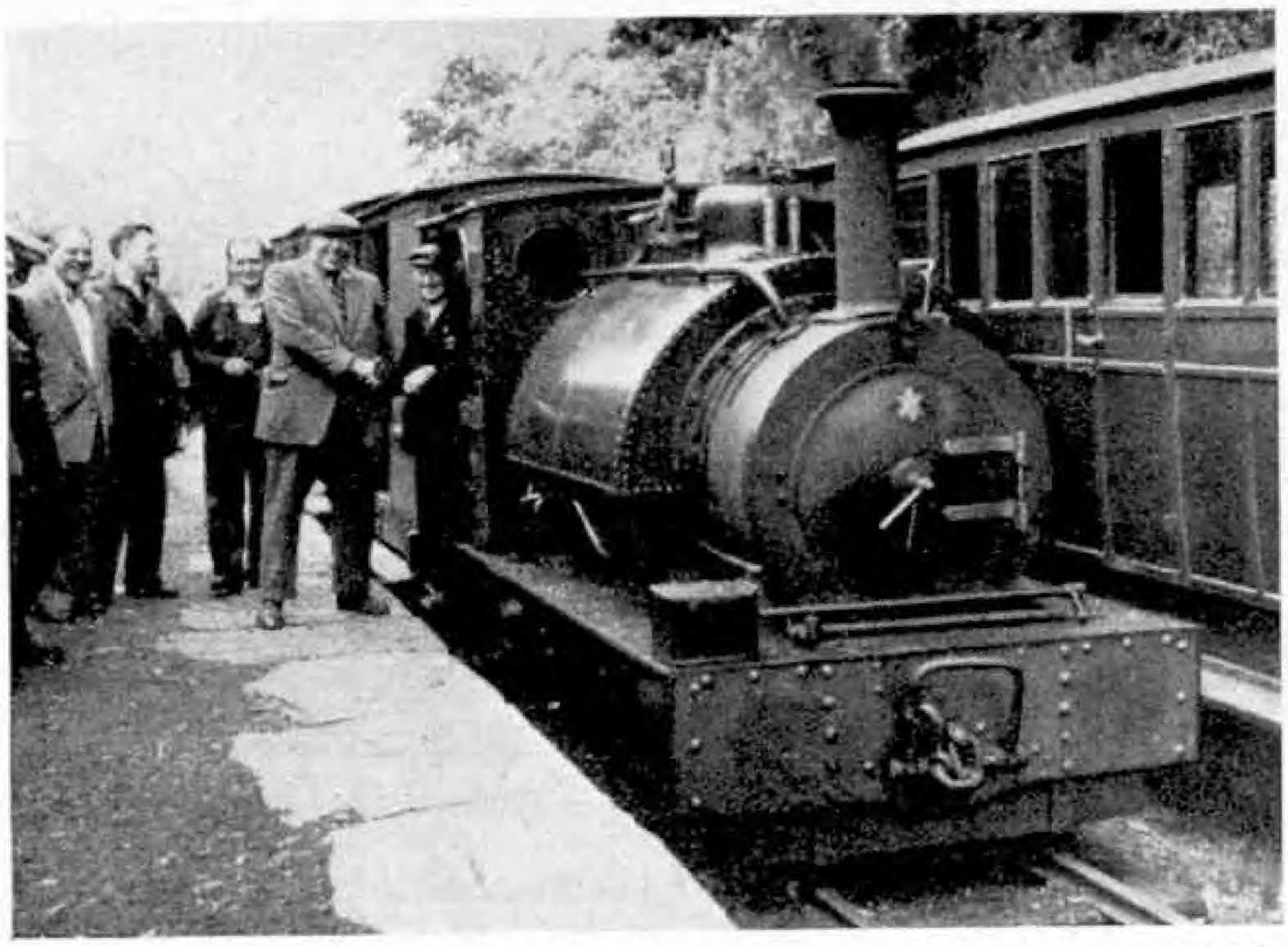
A train crossing Dolgoch Viaduct.

From this it may be assumed that the T.R.P.S. has served its purpose and that the future of the Tal-y-Llyn Railway has been assured. But this is far from the case. When the Society obtained control in 1951 it took over a near derelict railway, one that had received virtually no renewals since its birth in 1865. It found almost 7 miles of track where the rails were worn out and held in gauge only by the turf that lay between them.

It is this appalling state of the permanent way that has been the greatest difficulty. During the past 7 years the whole of the line has been re-sleepered, or entirely relaid, but although second-hand material of good quality was used and a certain amount of the labour was voluntary, the cost of renewal has



A scene at Dolgoch Station, with "Edward Thomas" halted alongside the water tank.



The two Earls. On the footplate of "Sir Haydn" is Laurie Earl, the veteran L.M.S. driver, and shaking hands with him is the Earl of Northesk, President of the Talyllyn Railway Preservation Society.

been staggering—almost £2 a yard in materials alone. So from the beginning there has been a constant state of war between the wear and tear of increased traffic and the Society's relaying programme. The latter is winning, but there is still a great deal to be done. Only when the Tal-y-Llyn Railway has been relaid throughout can its future be reasonably assured.

But there is no despondency, only enthusiasm, and as the traffic receipts have grown so has the membership of the Society, which is now around the 2,000 mark. Its activities are legion, regular working parties spend weekends track-laying, and wagon and coach building and repairing, while buildings are painted and maintained, and there is also the unique Narrow Gauge Museum at Towyn to be looked after with loving care. The Company are prepared to train Society members in the gentle arts of locomotive firing and guard's duties, and there is always a welcome in the booking office or on the track, or perhaps in the catering department, for the ladies.

During the Railway's closed season these working parties still operate, and the three main areas of the Society based on London, Birmingham and Manchester are constantly keeping members in touch with one another at meetings and exhibitions. There is also a delightful quarterly magazine entitled *The Talyllyn News*.

It must not be thought that the Tal-y-Llyn Railway is a plaything for amateurs. It is in fact a fully fledged Railway Company that has had the good fortune to escape the net of nationalisation, and it stands in exactly the same relationship to the public as does British Railways. It must obey the same rules and regulations of the Ministry of Transport, and in consequence the railway is operated as a model of correct narrow gauge working.

That this is so is largely due to a small, but energetic permanent staff, whose loyalty to the cause is a tonic in these difficult days. It is they who are very largely responsible for the excellent state of the locomotives, the great improvement in the permanent way and the neatly cut hedges, and it is they who will drive your train on that delightful journey up the valley.

From the sea coast terminus at Towyn the Tal-y-Llyn Railway heads straight for the mountains, climbing steadily past the Company's sheds and workshops at Pendre, past Rhydyronen — once Rhydyronen Spa — to Brynglas, a passing loop at the head of Fathew Valley where the hills begin to close in. From there the narrow line of rails runs on a shelf cut into the mountain rock on the southern side of the valley, and once on this shelf passengers have a magnificent view of the mountains ahead, crowned by the high peak of Cader Idris.

Soon, just before Dolgoch, the line runs through woods and rock cuttings before crossing the ravine by a 60 ft. high viaduct over the Nant Dolgoch. Then the Railway continues along its shelf through more woods and out into the wilder country among the scree, and cascades into the woodlands that lead to the upper terminus at Abergynolwyn.

Beyond this terminus is a now disused mineral extension leading to a series of once rope-worked inclines and to the Nant Gwernal Valley, which is perhaps the prettiest of them all. It is this valley

(Continued on page 158)

The Northlands in Stamps

Creatures of Canada's Wild Life Issues

By Frank Illingworth

THE world's eyes are on the polar regions. Half a dozen nations, Britain included, are pressing into areas of the Far North and Far South that were hardly mapped only ten years ago. In international law, to claim territory, the claiming country must prove that it is administering and developing the territory in question. To reinforce her claim to the minerally rich wildernesses of the "Northlands," Canada has issued many stamps showing scenes typical of her Arctic tundras, and sub-Arctic forests and barrens. Some of these are illustrated here.



We start with the 2 c. blue, which catches the very essence of the Far North, for it shows the polar bear, the "nomad of the ice floes."

For many years comparatively little was known about nanook, as the Eskimos call the Arctic bear. But advances in aviation have brought it within comparatively easy range, and many more men are penetrating the Northlands than even five years ago. So today the daily affairs of the polar bear are being closely studied.

This 1,000 lb. giant starts life as a ball of fluff weighing six ounces. It spends the long polar winter denned up with its hibernating mother, emerging with the first warm days into a pure white world. Throughout the summer it walks sedately at the side of its lumbering mother, or swims with her, hanging on to her tail when tired. It also grows at a prodigious speed. In fact the rabbit-sized baby of January will weigh 200 lbs., or nearly half its adult weight, by August!

Nanook is inordinately inquisitive. Hang up two paraffin cans in the wind and it will wander over to "see what's banging"; light a fire and Mr. or Mrs. Bear will investigate—and, too often, get a hunter's bullet in the brain.

Its sense of smell is remarkable. It is said to be able to scent burning blubber from a mile or more away. But its sense of sight is poor. It moves across ice safely and with the silence of a ghost—thanks to hairs on the soles of its feet. Henri Rudi, the famous trapper credited with shooting more than 700 polar bears, tells how one day an old bear crept up on him so quietly



One of the most remarkable photographs of a group of polar bears ever taken. Polar Photos photographs.



that when he turned round he knocked the animal in the face with the baulk of timber he was carrying to his cabin!

And the animal is as cunning as its small eyes suggest. Cunning, and dangerous, a killer prepared to tear the stomach out of a husky with one sweeping blow of its scimitar claws, tackle a musk ox, or stove in the head of a one ton walrus with a lump of ice.

The old males spend the long winters prowling the polar pack ice, searching for seals, and the summer ranging across icy waters or along Arctic coasts, hunting . . . and the Canada's 2 c. blue exactly captures the scene.

No less does the 4 c. grey, showing the walrus, typify the Arctic. Like the polar bear, the walrus belongs to the world of ice floes. It spends its life lounging on them, its resonant grunts and belching echoing across the water, alternately sleeping and diving to scoop bi-valves from the sea bed.

Herds of 5,000 and more of these animals are to be found. Indeed, members of the Royal Canadian Mounted Police counted 10,000 walrus—on Walrus Island, in Canada's Eastern Arctic. But this strange creature's numbers have been sorely depleted by hunting. The Eskimos will tell you how an enraged walrus will rise in the water to hook its great tusks over the gunwale of your boat and drag it under water. But the walrus, which may weigh anything up to 3,000 lb., provides the Eskimo with meat, leather and ivory, and for every one of these huge animals that kills a man hundreds are killed by hunting parties in small boats, including the Eskimos famous canoe-like *kayak*.

Certainly everything possible is being done to prevent indiscriminate killing of this strange creature of the polar regions with its Old Bill moustache and its habit of supporting its monstrous body in the sea by using its tusks as ice hooks. It jabs these into a heavy floe and then just lies in the water, listening for the tell-tale throb of approaching killer whales.



The 3 c. brown holds the very breath of what Canadians call the northern wilderness. It depicts the moose, the booming voice of which echoes across Northern British Columbia, and the North-West Territories and Yukon Territory, both of which stretch to the shores of the Arctic Ocean. It is, therefore, not surprising that the moose should be included in any series of stamps depicting Canada's Northlands.

The moose is a stately animal. Watch it wading after water herbage in the lea of forest and white-topped mountain, water dripping from its full lips and the end of its



The stately head of the Canadian moose.

curved nose, and be spellbound; and listen to the crash of two half-ton bull-moose charging in battle, eyes red with anger, snorting, backing and charging again and again in head-on impact!

Two main topics along the roads Canadian engineers are driving across the mineral-rich Northlands are moose and grizzly bear. Typical of the "moose tales" is that of the half ton bull that charged a 5-ton bus with such force that the impact shook packages from the racks on to passengers' heads. It was ultimately defeated only when the driver engaged bottom gear and literally pushed the great



A small herd of musk ox.

beast off the road. There are many such tales of moose, and many also to show that moose and men can live side-by-side in peace and tolerance.

This animal has long been a main source of meat for explorers, trappers, Indians, and so on. Its numbers are said to be dwindling in some parts of the Canadian wilderness. But Canadians go to great lengths to safeguard this grand animal from the threat of extinction. Witness the stories of the two bull moose with antlers locked together, and of calves whose mothers have been killed by wolves.



When a bush-pilot looked down and saw two moose with their great antlers locked he flew 400 miles to a wild-life ranger's cabin, and took the rangers to the scene of the charging match. There the men lassoed the two animals, trussed them, sawed through interlocking tines, cut the ropes—and raced for their plane. As for motherless calves, when one is seen it may be flown to the nearest settlement and raised "on the bottle"—and released.



It is indeed right that the power and dignity of this fine creature should be represented in any series of stamps of the Far North. And welcome also is the grace of the Canada goose, shown on the 7 c. blue from a photograph of this beautiful bird, whose honking and "wooshing" flight are heard over the uninhabited vastness of "the North."

Perhaps the main features of the animal shown on the 4 c. purple are dignity and power. Here is a breath from the Ice Age, a living link with the times of the mammoth —the musk ox of the Canadian North. It lingers on among the willow shoots of the barren lands and the blue and yellow polar poppies of Canada's Arctic islands, its ragged stomach hairs waving in the cold wind, its huge horns curling from a broad forehead.

Magnificent! Fearless! Watch what happens when wolves attack a herd of musk oxen. The bulls form a circle, within which stand the cows and calves. They lower their heads to form a wall of great frontal bones and horns, and the leader of the herd steps forward to give battle. Should he fall, the next oldest animal will step forward, pawing the ground, to give combat, and so on until—as when the attackers are not wolves, but hungry Eskimos—the last bull has fallen and cows and calves clatter away across lichen-covered rock.

As with other of Canada's polar animals threatened with extermination, wild life authorities are building up the numbers of this unreal creature who once "walked with the animals of prehistoric times."

Cynics may say that Canada's polar series will serve as monuments to species of animals destined to be exterminated by the northward surge of civilization. It must, however, be stressed that wild-life management is causing the increase of some species; the polar stamps, by bringing "key" Arctic animals to public notice, are likely to result in legislation to preserve them as Man marches inexorably "into the new Northland frontier country."

Air News

By
John W. R. Taylor



RF-101A photo-reconnaissance version of the McDonnell Voodoo fighter.

Our Greatest Pioneer

With the death of Sir Alliott Verdon-Roe in January last, Britain lost the greatest of her pioneer airmen. A Committee of the Royal Aero Club decided in 1928 that hops which he made at Brooklands 20 years earlier in a boxkite biplane were not long enough to be regarded as proper flights. But he became officially the first Briton to fly in a British aeroplane in this country on 13th July 1909, when he took off for the first time at Lea Marshes in the little Triplane that can still be seen in the Science Museum at South Kensington, London. It is covered with brown paper because he could not afford anything else and, anyway, the 9 h.p. motor would not have lifted anything heavier. In 1910 he founded the Avro company, and he designed personally the wonderful old Avro 504 biplane on which the whole foundation of modern flying training was laid. He was later associated with Saunders-Roe from 1928 until his death.

New Air Speed Record

After no less than 21 months, the fine air speed record set up by Peter Twiss in the Fairey Delta 2 has been recaptured by an American McDonnell F-101A Voodoo fighter. Piloted by Major Adrian Drew of the U.S.A.F., it achieved an average of 1,207.6 m.p.h. in two runs over a measured course near Los Angeles on 12th December last, beating the British record by 75 m.p.h. On the following day, Major Drew was decorated with the U.S. Distinguished Flying Cross.

Designed originally as a long-range escort fighter, the F-101A is now in service mainly as an interceptor. It is one of the largest single-seaters ever built, with a length of 67 ft. 5 in. and weight of nearly 20 tons; but its comparatively small wings span only 39 ft. 8 in. It is powered by two 10,000 lb. thrust Pratt & Whitney J57-P-13 turbojets with afterburners, and is armed with four 20 mm. cannon, three Hughes Falcon air-to-air guided missiles and 12 unguided rockets. Variants include the RF-101A photo-reconnaissance aircraft, with cameras in a lengthened nose—and illustrated above—and the F-101B two-seat interceptor.

More High Speeds

From Moscow comes news that a new Russian fighter, piloted by Hero of the Soviet Union Nikolai Korovushkin, reached a speed of 1,250 m.p.h. during its first test flight. No details of the aircraft have been given, except that it has "swept-back wings, an arrow-shaped tail unit and long rocket-like fuselage."

Soon afterwards, the French announced that their Nord 1500 Griffon experimental fighter had reached this same speed of 1,250 m.p.h. in a vertical climb. One of the most advanced aircraft yet flown, the tail-first, delta-wing Griffon has a mixed-power unit consisting of a SNECMA Atar 101E turbojet and a Nord ramjet mounted in its bulky fuselage. It is a single-seater with a span of only 26 ft. and loaded weight of about 13,225 lb.



This tail-first, delta-wing aircraft is the French Nord 1500 Griffon experimental fighter.

Un-Friendships?

Fairchild, the U.S. company that is building under licence the Dutch Fokker Friendship twin-turboprop air liner, is hoping to sell a military version of this transport to the U.S.A.F. In addition to normal transport duties, the Friendship could be adapted easily into an air ambulance or mobile headquarters for military staff officers in the field.

Rescue Service for Motorists

One of the most unusual air services in the world is operated by a Danish company, Falck's Redningskorps. As an extension of its normal air ambulance work, it offers a "get-you-home" service for Danish owners of cars and motor-cycles when touring anywhere in Europe. Before leaving home, the motorist pays an insurance premium depending



The Kaman H-43B, one of two versions of a crash-rescue helicopter ordered in quantity by the U.S. Air Force. This version is turbine-powered. Illustration by courtesy of Kaman Aircraft Corporation, U.S.A.

on the number of days he will be away and the number of countries he plans to visit. Then, if he becomes involved in an accident, Falck's fly one of their engineers to the nearest aerodrome to take charge of the car or motor-cycle and get it back to Denmark, while the driver and his passengers are flown home.

The service has already proved a great success with motorists who know from experience how awkward and expensive an accident in a foreign country can be. Nearly 20,000 people took advantage of it during 1957, paying an average of around £3 per vehicle. The 75 unlucky ones who had to be brought home from every country in western Europe got their money's worth, because each rescue operation for car and passengers costs Falck's about £300-500.

Present equipment of Falck's Redningskorps includes two D.H. Doves, one D.H. Rapide, an Aero Commander, a Turkish-built THK-5A ambulance, an Auster and a Danish KZ.VII lightplane.

Fire-Fighting Helicopters

The U.S.A.F. has ordered a large number of Kaman H-43A and H-43B crash-rescue helicopters, which are basically similar to the U.S. Navy's HOK-1 and will be powered by Pratt & Whitney R-1340 piston-engines and Lycoming T53 shaft-turbines respectively.

Kaman won this contract in competition with six other companies in a contest staged by the U.S.A.F. in June 1956. It entered a standard naval HOK-1, carrying fire-fighting equipment slung on a cargo-hook under its cabin, a rescue crew of three and pilot. As demonstrated, the helicopter flew to the scene of a simulated aeroplane crash fire, discharged its equipment and rescue crew, and then helped to subdue the fire by hovering and beating down the flames with the downwash of air from its rotors. In this way, the rescue crew repeatedly made successful rescues of a dummy placed in the centre of petrol fires. H-43A and, later, H-43B helicopters on the alert at bases throughout the world will provide maximum protection for personnel involved in aircraft accidents. They will act also as air ambulances for the speedy transfer of injured persons from the scene of an accident to the base hospital.

Too Many Spotters

It seems that there is an unusually large number of keen aircraft spotters among the 1,200 population of tiny Norfolk Island, 930 miles N.E. of Sydney, Australia. Until a few months ago, so many of them went to the airport each Sunday to meet the once-weekly Qantas Skymaster air liner from the mainland that attendances at church services began to suffer. The chaplain, the Rev. Silas Horton, wrote to Qantas, asking if its air liner could be sent over on a different day. Now it arrives each Saturday, which is better for tourists and for the chaplain who sees more of his flock in church.

Italian Lightplane

The neat little twin-engined monoplane illustrated below is the Pasotti F.6 Airone, built at Brescia in Italy. Intended for touring, business travel or air ambulance duties, it is powered by two Czech 105 h.p. Walter Minor IV engines and has an unusually roomy cabin for four persons. Safety features include large windows, giving a good field of vision, and a nosewheel which protrudes from the bottom of the fuselage when retracted to reduce damage in an emergency wheels-up landing.

Of all-wood construction, the Airone has a loaded weight of only 3,087 lb. and has a maximum range of 745 miles at 162 m.p.h. It will take off in 655 ft. and land in 490 ft.

* * * *

Following the introduction of the Tu-104 jet-liner, the Russian airline Aeroflot carried nearly 60 per cent. more passengers during 1957. It is expected that more people will soon travel by air than by surface transport between central parts of the Soviet Union and Siberia, the Far East, Central Asia and other outlying areas. Already Aeroflot is carrying more than half of all passengers between Moscow and Ashkhabad and nearly half of those travelling to Khabarovsk and Chita.



An Italian lightplane, the Pasotti Airone F.6, flying over Paris. Illustration by courtesy of Vico Rosaspina.

Road and Track

By Peter Lewis

THE month of March is always a busy one in the world of competition motoring and in this country, between 11th and 15th March, entrants in the Seventh R.A.C. Rally will be competing against each other over a route of 1,800 miles in England, Wales and Scotland.

Like the Monte, the R.A.C. Rally has international status and counts towards the 1958 Rally Championship of Europe; it is also one of our three major international events of 1958, the others being the British G.P. and the R.A.C. Tourist Trophy.

The Rally starting points are at Hastings, Blackpool and Le Touquet, and after competitors have converged at Prescott, the home of the famous hill climb, the cars proceed via Wales to Blackpool, where there is a nine hour rest period. Then competitors continue via the Lakes, north of England, south Scotland and east of England to Hastings.

The entry fee is £12 12s. 0d., and competitors must hold a current competition licence of the F.I.A. (Federation Internationale Automobile) as well as a valid British driving licence. Entries are divided into five groups (such as normal series production touring cars and improved series production touring cars) and into ten classes according to engine capacity.

First prize in general classification (the outright winner) is £250, and there is prize money totalling a further £1,100.

The R.A.C., which organises the rally, stresses that it is not a race and that the average speed schedule will not exceed 30 m.p.h. There are secret check points where officials observe driving manners, vehicle noise and average speed. Dangerous driving means disqualification.

Each car starts the rally with a Road Book and/or a Route Card giving the location of controls and check points, and the scheduled arrival times. In addition to having to follow the route correctly and on time, competitors will have to take a number of tests, which will include the following: speed tests at such places as Oulton Park, Aintree, Charterhall, Silverstone and Brands Hatch; acceleration and braking tests "somewhere in Wales and the north of England," and manœuvring tests at Blackpool, Hastings and Chapel-en-le-Frith.



In this general view of the B.M.C. Competitions Department at Abingdon the four cars to be seen are Nancy Mitchell's M.G. Magnette, Mike Couper's Austin 105, Ray Brooke's Riley 1.5 and Jack Sears' Austin 105.

The system of marking is that every competitor starts with zero marks and can then be penalised for a wide variety of errors, such as not reporting at a control (300 penalty marks), not passing or providing proof of visiting a check (200), striking a barrier, wall, marker or pylon or crossing the boundary of a test (10 marks per mistake).

The B.M.C. Competition Department

As the R.A.C. Rally is a championship event, the British Motor Corporation has

entered a team. The cars have been prepared in the B.M.C. Competition Department, which is within the M.G. works at Abingdon, Berkshire. There Marcus Chambers, a member of the select British Racing Drivers Club and a competitor himself between 1931-1947 in trials, speed hill climbs and sports car races, has a staff of a dozen enthusiasts, all recruited from the M.G. works, to help him in the full-time job of supervising the preparation of the B.M.C. works cars for five major rallies in 1958.

Most of the year the Competition Department is an absolute hive of industry and when I visited Abingdon just prior to the team leaving for the Monte Carlo Rally, M.G. Magnettes, Riley 1.5's, a Wolseley 1500, an Austin A.105 and several Morris Minor 1000's and Austin A.35's were in various stages of trim for the Monte.

The chief mechanic is Douglas Watts, who served throughout the last war with the R.E.M.E., and the enthusiasts who make up his team put a maximum effort into a 44-hour week, which more often than not has overtime added.

There is not much that the Competition Department can do once the B.M.C. cars have left their starting points, but Marcus Chambers and Douglas Watts operate a rota system so that their backroom boys have an opportunity each year of taking the service lorry abroad for such rallies as the Monte, the Alpine and the gruelling Liege-Rome-Liege.

Few people realise just how much work can be done to a standard car straight off the production line, without altering its classification for competition work. Rally regulations differ, but generally speaking the rough material that is the average engine when it comes off the line can be dismantled and rebuilt, so long as standard "off the peg" component parts are used and the cubic capacity and compression ratio of the engine remain unaltered. To rebuild in this case means such work as balancing the crankshaft and pistons, smoothing out the rough edges in the cylinder head so that gas flow is at maximum efficiency, and lining up exhaust and inlet manifolds with the cylinder head. There is also much that can be done to an engine by an expert in carburation and ignition.

The reward for hard, conscientious work is an engine that develops extra brake horse power, but is still standard.

Then of course there are the modified cars, such as the potent little Morris Minor 1000 of Pat Moss and Ann Wisdom,

(*Continued on page 158*)



Juan Fangio, Stirling Moss and other famous drivers of the Mercedes team at Aintree after the British Grand Prix of 1955. On the right is Alfred Neubauer, who retired recently after 30 years as team manager.



Marcus Chambers, B.M.C. Competitions Manager, explains some of the mysteries of preparing the B.M.C. "B" Series engine to an "M.M." reader. The engine is from a works-entered Riley 1.5 for the Monte Carlo Rally. Douglas Watts, chief mechanic, is on the left.

Mechanisation in the Post Office

Machine Sorts 3,000 Letters an Hour

HAVE you ever seen Post Office sorters at work, picking up letters, glancing at the addresses and then placing each one in its appropriate compartment or pigeon hole? Although they move quickly, and pick out the correct pigeon hole for any particular letter without hesitation, this takes time.

Hand sorters, working with racks of 48 pigeon holes, place letters correctly at a speed of about 1,300 an hour, but now a machine developed by British Post Office engineers, with one man controlling it, sorts letters at the rate of 3,000 an hour. And as the number of pigeon holes it contains is 144, the work it does is practically final, whereas with only 48 pigeon holes in which to place letters some further sorting within each stack is almost always necessary somewhere along the line of travel of the mail.

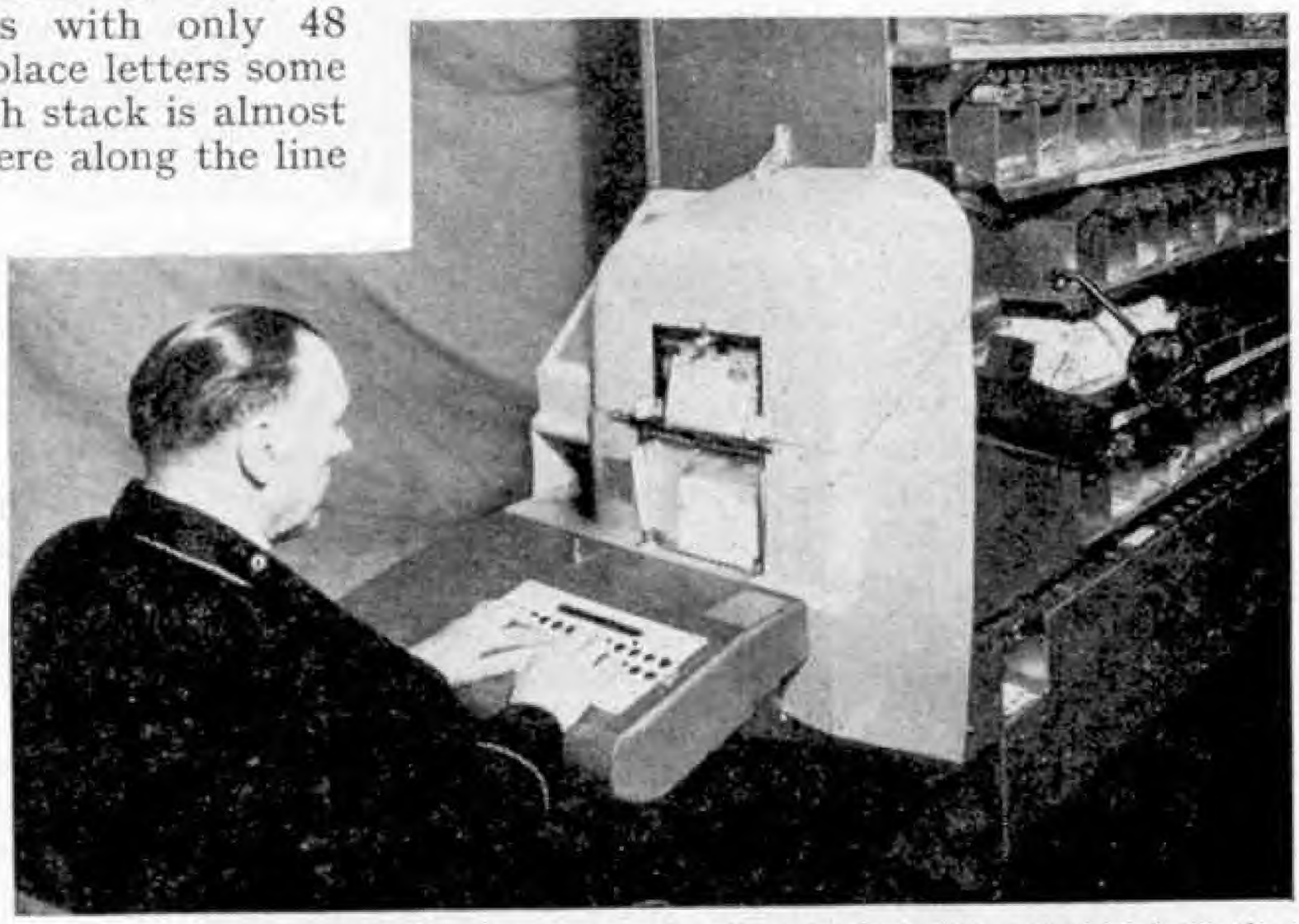
The earliest of these sorting machines, one of which is seen in the upper illustration on the opposite page, were put on trial at Southampton and Bath, and more are being brought into use. It will be seen that there are five rows of pigeon holes in the machine, while along the front of it is a moving band that carries letters to be sorted.

These are taken up one at a time. Each is brought to the upper of two windows in front of the operator, as seen in the picture on this page. There he reads the address, and after a brief interval the letter drops to the lower of the two windows. It is then that the operator rapidly presses code keys on the desk in front of him, on which the letter is taken by the machine to the pigeon hole, or stacking box as it is called, that the code keys pressed direct.

That in outline is how the machine works. It is 16 ft. long, 2½ ft. wide and 6 ft. high. Although it weighs 2¾ tons, it can be transported as a single unit.

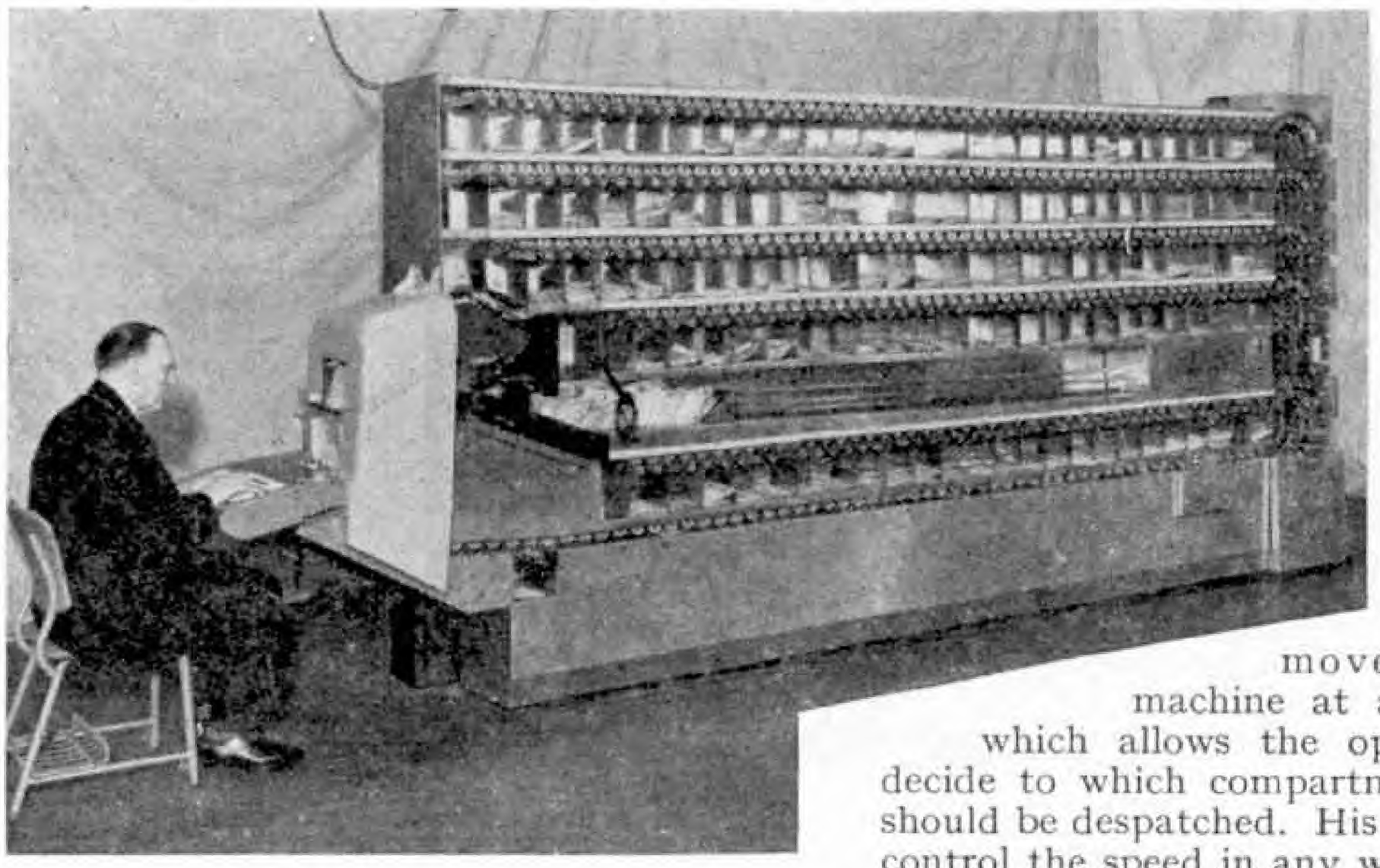
The sorting machine may be considered as consisting of four main parts. The first of these is the letter feed conveyor, that is the band on which the unsorted mail is stacked to begin with. The letters have previously been "faced," that is they have had the address side put in the correct position for reading. A photo cell controls the feed of the conveyor, to maintain the top letter of the unsorted stack in the correct position for entry to the second part of the machine, the presentation unit.

This part of the machine is in front of the operator. It controls the movement of the letter from the unsorted stack to the two viewing windows already mentioned, and then to the main conveyor. This presentation unit works in response to the operation of a pair of the keys, one from each of two rows of 12 keys, feeding one letter into the main conveyor, presenting a second letter to the operator's view and picking a third letter from the top of the unsorted stack.



How letters are presented to the operator in the new Post Office electronic sorting machine. On reading their destinations, pressing selected keys directs each into its correct box. Photographs by courtesy of H.M. Postmaster General.

The main conveyor is the third part of the machine. It takes all letters from the presentation unit to the start of the selective conveyor system, which is the fourth part. This consists of five horizontal



This overall view of the machine shows the five rows of boxes into which the letters are sorted.

conveyors, situated above the five rows of stacking boxes, and a vertical distributor that feeds these horizontal conveyors. Diverter blades spaced along the conveyors divert each letter first into its correct horizontal run and then into its correct stacking box. Ingenious devices ensure that each diverter comes into operation at the appropriate time, an electronic memory being part of the design of this remarkable automatic sorter.

The control system of the machine is capable of sorting to 144 different selections, but only 120 of these are actually used on the machine. The number of stacking boxes provided is 133, the surplus ones being used to supplement the capacity of boxes for destinations for which there are heavy postings. In addition to the 24 code keys on the operator's keyboard, there are a "Feed" key and a "Cancel" key. The feed key, which is operated by the thumb, causes the presentation unit to go through one cycle of operations, but routes the letter concerned to a permanently open overflow box. The idea of this is that the operator can dispose of any letter with an address he cannot read, or one that is upside down or reversed, without having to pick it out by hand. The cancel key allows him to cancel his keying if he realises that he has done this incorrectly, and pressing it diverts the letter to a separate box for later sorting.

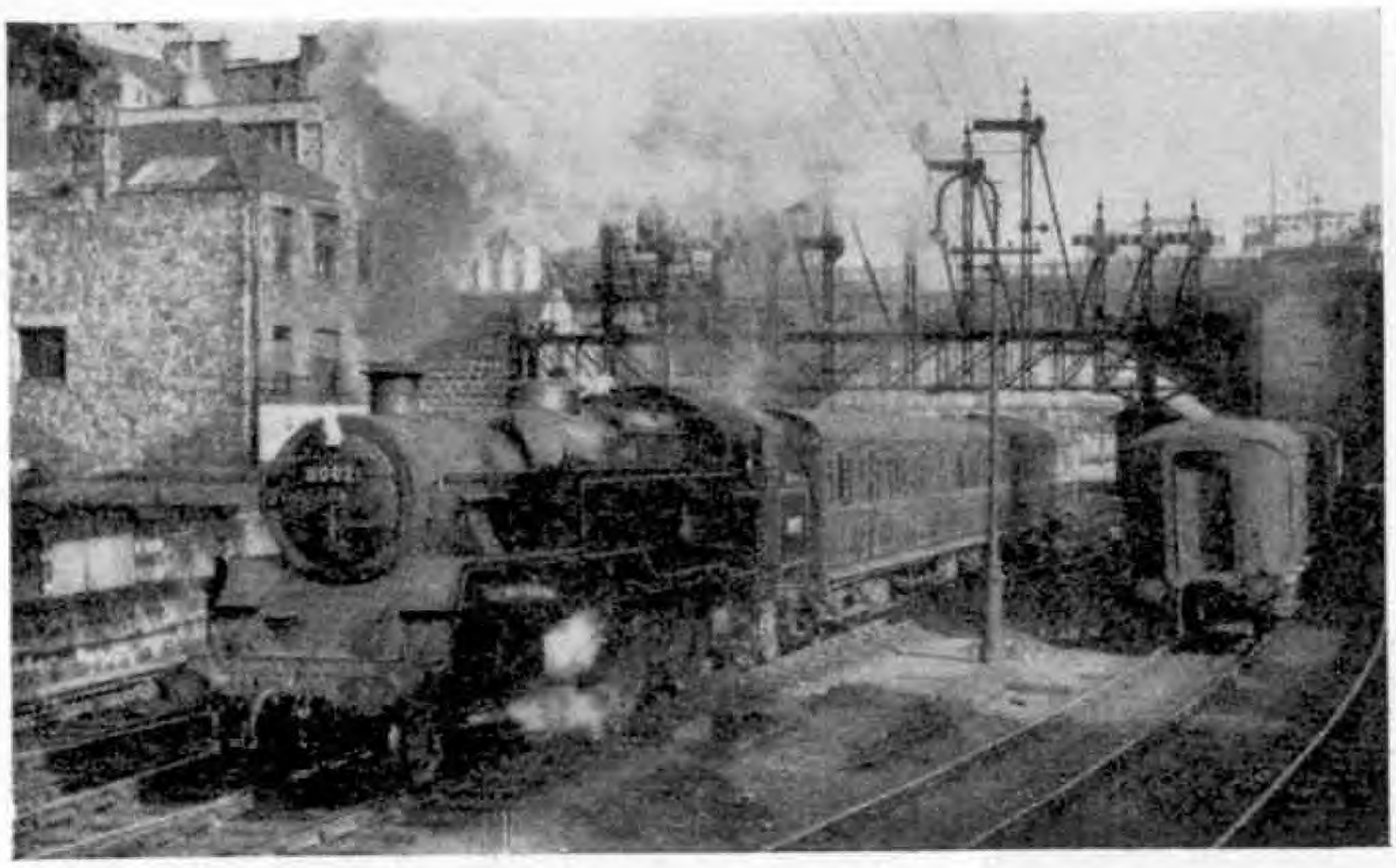
The letters move through the machine at a uniform rate, which allows the operator time to decide to which compartment each letter should be despatched. His keying does not control the speed in any way. Everything is done electronically by the machine itself to bring about the correct timing of all the movements concerned.

There are other ways in which postal services are being mechanised. For instance, a packet stamping machine has been developed to carry out work automatically that previously has had to be done entirely by hand. This is particularly helpful at such places as Southampton, where enormous numbers of magazines coming from America have to be date stamped. Another development has been the introduction of closed circuit chain conveyors specially designed to carry bags

(*Continued on page 158*)



The loading end of a machine that automatically separates thin letters from newspapers, packets and bulky letters, and is described on page 158.



B.R. Standard 2-6-4T No. 80021 is here leaving Aberdeen for Inverurie. This and the lower illustration on the next page are from photographs by P. J. Lynch.

Railway Notes

By R. A. H. Weight

Aboard Inter-City Diesel Express

Very different from their steam *Inter City* expresses on the Paddington-Wolverhampton service, described in these notes last October, are the fast W.R. diesel services recently introduced on a large scale linking Birmingham with Cardiff and Swansea by way of Cheltenham, Gloucester and Newport. They provide a valuable cross-country link, considerably augmenting and improving upon the steam train timings along the route or parts thereof.

The cars are made up in sets of three, finished externally in smart green livery with cream linings. They are of full main line dimensions, vestibuled, with automatic couplings, and fully adequate lighting and heating, including hot water supplies. In general they are very similar to the Scottish Region Edinburgh-Glasgow express sets illustrated and mentioned last July. Comfortable seating is arranged in compartments for first-class passengers, and in saloons having centre gangways for second-class. The end vehicle in each three-set contains guard's and driving compartments. Half the latter can be shut off when not in use, allowing through corridor communication to be effective through the train when two sets are joined together, as is regularly done, and providing access to the compact, attractive buffet car forming part of the centre coach in some of the sets. Large windows provide good opportunities for observation, as now customary. Each power car carries two underfloor, 6-cylinder, 150 h.p. diesel engines fitted with 18 in. fluid flywheels giving direct transmission.

I rode the 4.15 p.m. from Swansea, which had begun its journey at Carmarthen, past the great Steel Works at Margam without a stop to Cardiff in less than the 67 min. allowed. After attaching a second 3-set containing buffet car we called at Newport (Mon.), and attained 70 m.p.h. on the level subsequently. Then, leaving the main line to London or Bristol and crossing over it as it descended into the Severn Tunnel, we proceeded on to a delightful scenic stretch, observing Chepstow with its riverside cliffs and impressive railway bridges. Miles of wide views of the Severn, the Cotswolds and other more distant hills followed, nearly all the way to Gloucester, reached in less than 50 mins. from Newport exactly to time. A fast run by way of Stratford-upon-Avon to Birmingham Snow Hill, completed this lively train's journey.

Locomotives in the News

Main line diesel locomotives are to be classified into power groups 1 to 5. The most powerful will be in category 4 or 5, and will be numbered below D2000. Nos. D2000-2999 have been allocated to the 150-300 h.p. light shunting types with mechanical or hydraulic drive, instead of their present numbers as so far allocated between 11100 and 11719 Existing ones will be renumbered.

Other series in use or on order will not be affected as regards numbering. Diesel-hydraulic 4-wheeled 225 h.p. type shunters lately entering service numbered 11717-9, for example, will become D2717-9. They are allocated respectively to 62B, Dundee, Tay Bridge, 62C, Dunfermline, and 64A, St. Margaret's, Edinburgh.

New diesel-electric engines have been added to stock and stationed as follows:—No. D5501, main line mixed traffic, 30A, Stratford; Nos. D8012-5, 1,000 h.p. Bo:Bo, 1D, Devons Road, London L.M.R., together with the first of ten 800 h.p. also for freight duty around London, numbered D8200. Of the 350 h.p. shunting class, Nos. D3394-6 are allocated to 65A, Eastfield, Glasgow, Nos. D3397-3403, D3419 to 88B, Cardiff, East Dock and Nos. D3448-53 to 35A, Peterborough. Diesel-mechanical with new numbering Nos. D2262-3 to go to 55D, Royston, Yorks. Similar locomotives numbered D2000 upward are coming out from Swindon Works, among considerable construction in hand.

The large steam 2-10-0s continue to emerge from Crewe and Swindon. Recent additions include Nos. 92180-1, to 35A, Peterborough and Nos. 92161-2 to 18B, Westhouses. Completing the order for class "4" 2–6–0s lately fulfilled at Horwich Works, Lancs., No. 76099 went to the Scottish Region.

It is understood that 4–4–0 No. 62277 *Gordon Highlander* is to be preserved as an example of former Great North of Scotland Railway design used for all kinds of train in north-east Scotland for many years. Note the modern very different locomotive (built at Brighton) as in use today seen in the first illustration this month. There may be a reprieve also for one of the D20 4–4–0s, the last three of which have just been withdrawn, so that it might be available for hauling Society specials and the like. A picture of one appears on the next page. The type will be familiar to many readers as the largest and perhaps most successful of the old N.E.R. 4–4–0 express classes, known as "R" before the L.N.E.R. classification.

No. 46245 *City of London*, 8P 4–6–2, has been repainted in former L.M.S. red.

On the Western Region No. 4056 *Princess Margaret*, the last active representative of the Star pioneer 4-cylinder 4–6–0 class, has been withdrawn. An earlier example, *Lode Star*, is preserved at Swindon.

When travelling to haul special trains in the west, or returning towards Didcot from such duties, the

veteran 4–4–0 *City of Truro* has run double-heading with a King and also with a Castle. The fitting of the Kings with enlarged superheaters and double chimneys has continued. No. 4090 *Dorchester Castle*, modified with longer smokebox and double chimney set farther forward, recently hauled the westbound *Bristolian* on many occasions, being logged at speeds up to 96 m.p.h.



The 2.2 p.m. from Dover Priory to Victoria near Bickley during one of the fine runs mentioned on this page. The engine is L1 class No. 31788. Photograph by B. C. Bending.

Southern Speed and Tidings

Though the L1 2-cylinder 4–4–0s are now more than 30 years old, of modest size and only normally used for fast trains at busy times or as replacements, they are still capable of fine work in the hands of keen footplate crews. For example, along the difficult Chatham-Kent Coast main line, described in my special article in the *M.M.* for September last, No. 31788 on the Saturday afternoon Dover-Victoria train calling at a number of stations, recorded by Messrs. Arthur and Norman Harvey, gained more than 5 min. from Chatham to Bromley South on two occasions including some delay by signals and track repairs, with eight corridor coaches. Sole Street bank was climbed in each case with a minimum of 39 m.p.h., which was excellent under the circumstances, and time continued well in hand on to Victoria, the schedule through the suburbs being easier.

The station-to-station start-to-stop times earlier in the journey, however, up the steep grades from Dover towards Canterbury, then on through Faversham and Sittingbourne are very tight. No. 31754 with a similar load did extremely well throughout and surprised the guard as well as the experienced recorder in the train by reason of the rapid accelerations and mastery of the situation. Later, the 23¼ miles from Chatham to Bromley South, with the luxury of a clear road, curves, climbs and junctions included, were covered start to stop in barely 29 min., so that 9 min. had been gained and perhaps a new local record of its kind created.

Of course, the larger and much more powerful light Pacifics, or class 5 B.R. 4–6–0s, the usual principal motive power for the route until electrification takes place, could doubtless achieve similar speeds and perhaps with a rather heavier train. Maxima over 90 m.p.h. have been attained down the descent to Farningham Road, for instance, by such locomotives having 6 ft. 2 in. driving wheels, though the schedules of the best trains do not call for such celerity in the ordinary way.

Jointly with the Western Region, considerably faster through trains are running to and from Portsmouth-Southampton-Bath-Bristol and beyond by way of Salisbury and Westbury, Wilts. South of Salisbury, inclusive, also to Winchester, Alton, and Andover (via Stockbridge), diesel-electric two-car or longer trains are providing much more frequent services on quicker timings to and from Portsmouth and Southampton on several routes. I travelled by some recently, visiting Southampton, Romsey, Winchester, Fareham and so on, when all seemed to be working well. At Eastleigh, Southampton-Winchester main line diesels connect with Portsmouth-Andover stopping ones in each direction. This important junction is becoming a busier place.

Contrasting News Items

A magnificent train including sleeping cars, radio and telephone equipment, was assembled to convey an important Canadian Trade Mission party round Britain from London and back. Locomotives used over parts of the tour were a W.R. gas turbine and the English-Electric *Deltic*.

Passengers are being asked by travelling officials their opinions or preferences while various prototype new carriages embodying latest ideas in comfort and accommodation are attached experimentally to certain principal expresses.

Meeting, clothes drying and mess rooms with snack bar for staff together with new offices, centrally heated, form part of the modern buildings now in use at Carlisle, Upperby, Locomotive Depot. New staff and stores buildings are under construction at other places.

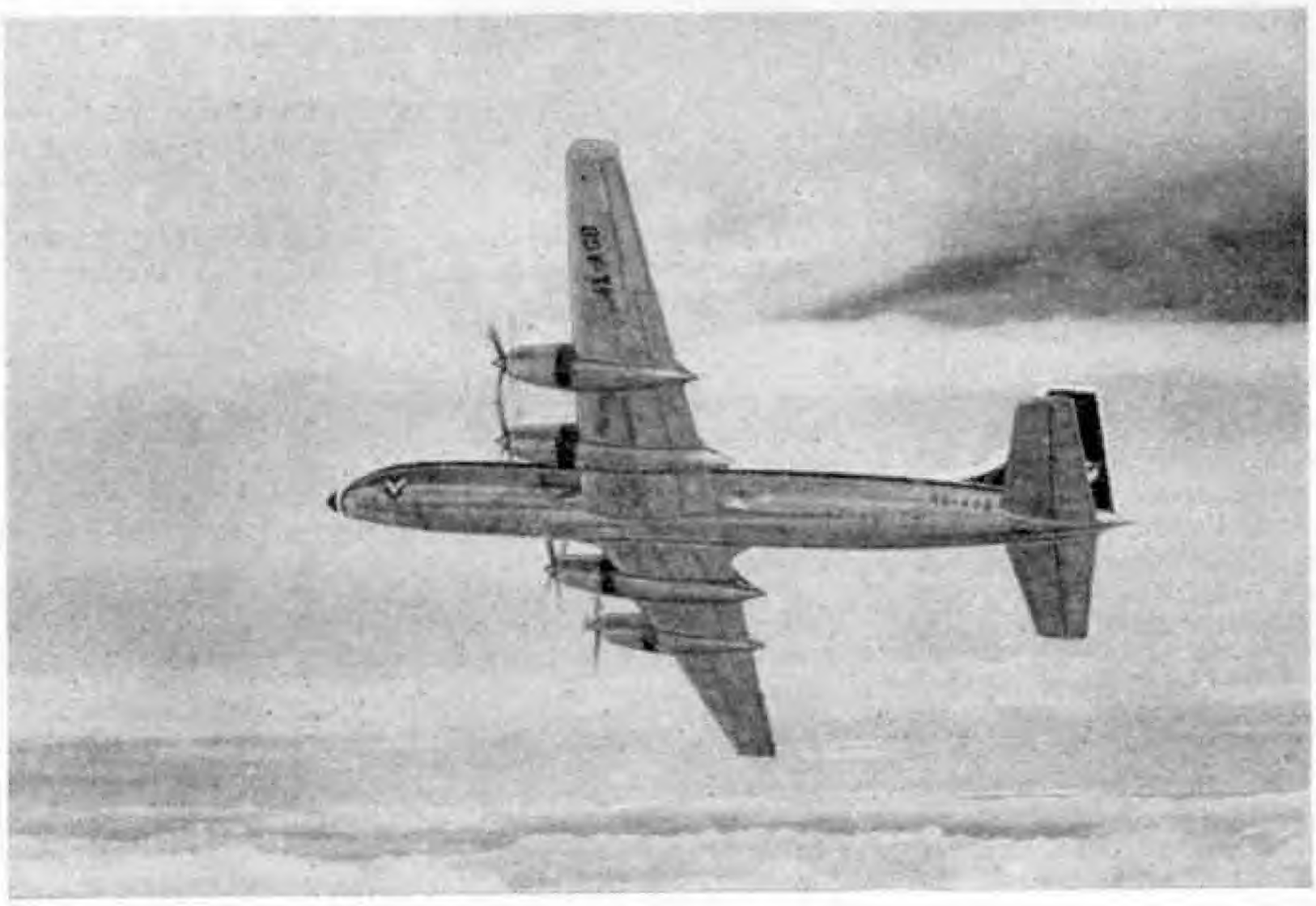


Two former North Eastern engines, a D20 4-4-0 and a B16 4-6-0, near Selby, heading a train from Bridlington to Leeds.

The Record-Breaking Britannia

By John W. R. Taylor

ONE of the most remarkable flights in the history of air transport was made on 19th December last by a Bristol Britannia 313 air liner owned by the Israeli national airline, El Al. Taking off from New York at 6.24 a.m. G.M.T., this aircraft flew non-stop to Tel-Aviv, covering the distance of 6,100 miles in 14 hr. 56 min., at an average speed of about 400 m.p.h. In doing so, it flew further than any other air liner yet in service, and faster than any but the Russian Tu-104 jet-liner, which is only a medium-range aircraft.



One of the Bristol Britannia 313 air liners of El Al, the Israeli national airline. This illustration and those on the opposite page are reproduced by courtesy of The Bristol Aeroplane Co. Ltd.

On the same day, Aeronaves de Mexico broke the record for the Mexico City-New York run, by linking the two cities in 5 hr. 25 min. with their first Britannia 302, compared with the fastest previous scheduled time of 6 hr. 45 minutes.

Twelve days earlier, El Al had slashed 26 min. off the New York-London transatlantic record, by covering the route in 8 hr. 3 min., and on 9th January last one of their Britannias cut the time further to 7 hr. 44 minutes.

Such records are tremendously important, because speed is the greatest advantage offered by air travel; but in the long run reliability and comfort are what really matter, and here too the Britannia has been setting up some pretty impressive records.

This may surprise you because, since the medium-range Britannia 102 entered service for the first time on B.O.A.C.'s South African route on 1st February, 1957, our newspapers have been full of stories about icing troubles that have caused engine failures during flight, and of other incidents that have led to delays at stopping points *en route*.

It is true that there have been problems and delays, some of them quite serious. But no new aeroplane ever enters service without teething troubles, however long and carefully it has been test flown. Being such an important type, the Britannia has received more than its fair share of attention from the press, for whom bad news always seems to justify bigger and blacker headlines than good news.

Comparison of the results achieved by B.O.A.C. in 1957 with their 15 Britannia 102's, and of experience with other large modern air liners, tells a different story.

So far as the operator is concerned, an aeroplane earns money only when it is in the air and his aim is to keep it flying for as many hours as possible each day. The ideal is an average of around 8½ hrs. a day, giving an annual utilization of 3,000 hrs., the rest of the time being spent in loading and unloading, refuelling and the lengthy inspections, between-flights servicing and regular overhauls that ensure safety.

In their first nine months of passenger service, B.O.A.C.'s Britannia 102's each flew an average of 5 hr. 51 min. per day Obviously, utilization improves as

experience is gained, and the average for the whole of the first year was expected to be about 6½ hrs. per day. This is almost exactly the same as the daily utilization of 6 hr. 38 min. recorded by the Douglas DC-7 in its first year, and considerably better than that of the Lockheed L-1049C Super Constellation which had reached only 5 hr. 39 min. at the end of the same period. Yet these two American machines were merely developments of earlier well-proven types, whereas the Britannia was not only an entirely new design but was the first large turboprop air liner to enter service anywhere.

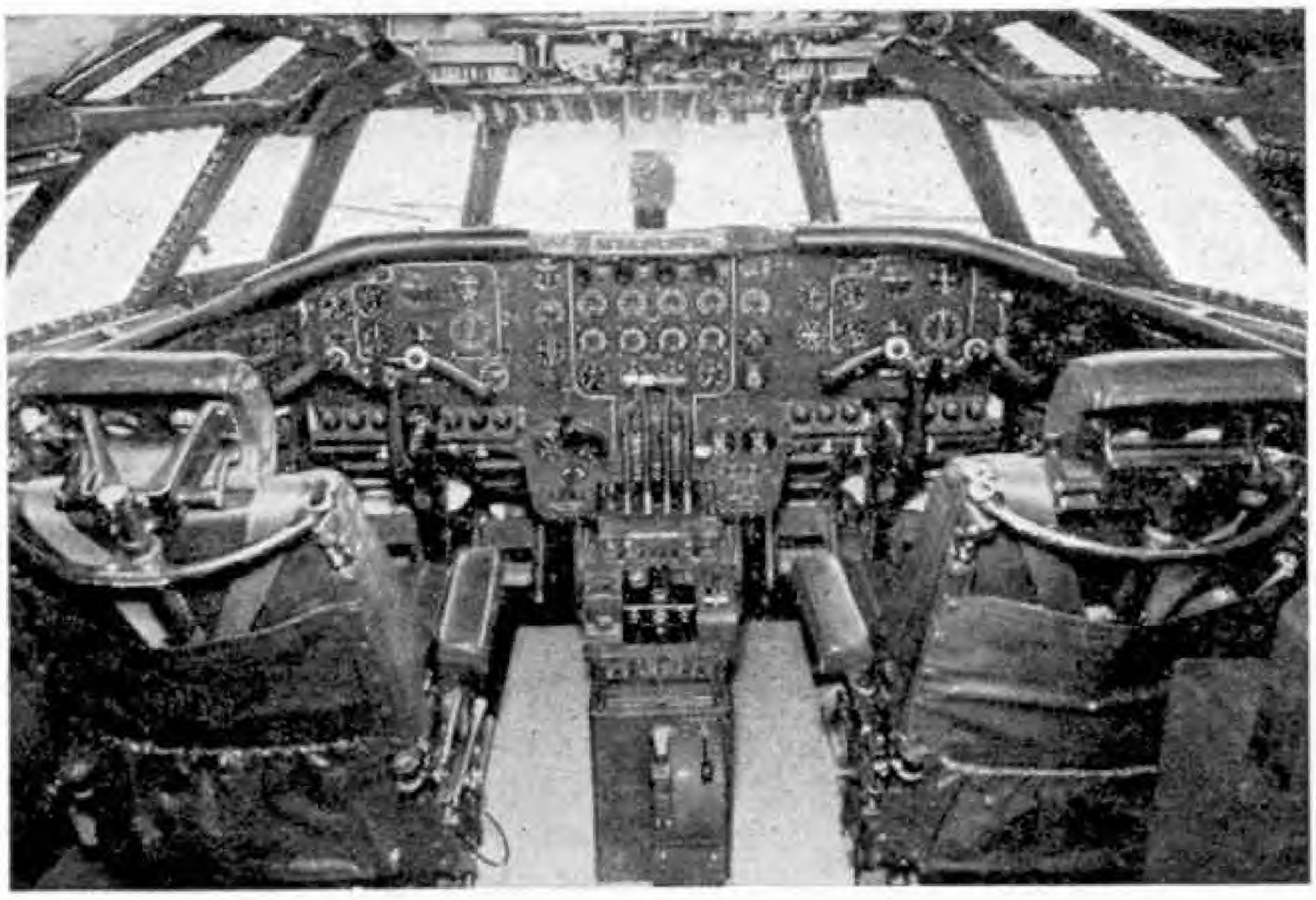


The medium-range Bristol Britannia 102 entered service with B.O.A.C. on 1st February last year, on their South African route. Here is the scene at London Airport at the start of the inaugural flight.

It is important to remember also that the Britannia spent its first year on some of the most exacting routes in the world, from London to South Africa, Australia and the Far East. There is a big difference between the long journey to Tokyo, with as many as eight transit stops of only 45 min. each, and the London-New York non-stop service, where spares need be stocked at only two airports and many hours are spent on the ground between flights. In fact, a lot of the troubles encountered by the Britannia would never have arisen if it had not been operated in tropical regions.

The fact that this fine British turboprop air liner has done so well is due in no small measure to the hard work and enthusiasm of B.O.A.C. ground crews, who put in 50 man-hours of maintenance for every hour spent in the air in the first six months. Bearing this in mind, it is interesting to see exactly what caused the delays, and some interesting facts and figures have been given by Dr. A. E. Russell, a Director of the Bristol company, who was in charge of the team that designed the Britannia.

In its first 24 weeks of operation, a total of 1,574 hrs. were lost in delays, of which three-quarters resulted from 26 major hold-ups of more than 12 hours each. Of these, 23 were on the Far Eastern service and were caused by the need to change seven engines, two engine control units, three elevator control units, two brake valves, two fire extinguisher bottles and ten other components. More than half of the time would have been saved if



Part of the flight deck of a Britannia air liner, showing the pilot's and co-pilot's positions, and the great many controls and instruments. Flying instrumentation is duplicated, a set for each pilot.

spare parts had been available on the spot.

This helps to emphasise what a complicated piece of machinery the modern air liner is, because only a very small proportion of the troubles were connected with the airframe. The biggest percentage resulted from failure of small components in the electrical, hydraulic and other systems, supplied by outside companies. Next came engine failures.

The main engine trouble was that when the Britannia flew through a certain rare kind of weather condition in the tropics, ice formed inside the Proteus turboprops, causing loss of power and even stopping or damaging the engine in extreme cases. In 1957, of 74 cases where engines had to be changed before they were due for overhaul, 25 resulted from ice damage. All but three of these "icing" changes occurred in the first six months, and Bristol have now almost cured this particular trouble. Half of the remaining engine changes resulted from the use of an inadequate metal in a batch of turbine blades that have now been replaced.



The first Britannia 314 for Canadian Pacific Airlines in an advanced stage of assembly at the Belfast factory of Short Brothers and Harland Ltd., by whose courtesy this photograph is reproduced.

As a result, after entering service with a flying life of 650 hrs. between overhauls, the Proteus 705 turboprop fitted in the Britannia 102 had this extended to 850 hrs. on 16th May, 1957, and to 1,050 hrs. on 18th September. No other engine has made such progress in 7½ months, for even the Viscount's Rolls-Royce Dart took 11 months to reach an overhaul life of 1,050 hours. What is more, in the first six months B.O.A.C. aircrews had to stop and feather the propeller of a Britannia only 17 times in 59,477 engine hours. This is twice as good as the Dart in its first year of service in the Viscount, and three times as good as the Wright R-3350 Turbo-Compound engines in T.C.A.'s Super Constellations.

So much for figures. In their way they prove the efficiency of the Britannia more than any words; but it is the quiet comfort and luxury of turboprop travel that will win over most passengers from "old-fashioned" piston-engined air liners.

The medium-range Britannia 102, with four 3,900 h.p. Proteus 705 turboprops, carries 40 first-class passengers in specially-designed Microcell Slumberette seats, or 68 passengers in its mixed first-class and tourist form. It has a maximum range of 5,450 miles and cruises at 340 m.p.h. at 21-33,800 ft.

B.O.A.C. claimed last year that the 102 had the most spacious accommodation ever offered in an air liner; and the new long-range Britannia 312 (four 4,120 h.p. Proteus 755's) with which they opened the first scheduled turboprop services across the North Atlantic on 19th December last is even more luxurious. Its fuselage is ten feet longer than that of the 102, yet B.O.A.C.'s transatlantic 312's are equipped at present to carry only 52 passengers in 28 *de luxe* sleeper and 24 first-class seats, in pairs on each side of a wide aisle. El Al, on the other hand, are going flat out to capture the tourist and "economy" class traffic with accommodation for 18 first-class and 72 tourist passengers in their Britannias. Even then there is little of the feeling of being a speck of toothpaste in a tube that one experiences in smaller aircraft; and when all the comfort of flying above the weather is combined with the new "economy" single fare of £90 between London and New York, there

(*Continued on page 158*)

MECCANO MAGAZINE



The largest baobab tree in the area of the Victoria Falls, Rhodesia. Photograph by A. J. D. Sainsbury, Nairobi, whose description of the tree is on this page.

One of the largest, though not the highest, of African tropical trees is the baobab, one of which is seen in the upper picture on this page. This tree is common in the neighbourhood of the Victoria Falls, and the one that is seen in the picture is said to be the largest in that area. A wire fence has been put around it in order to prevent visitors from engraving their names on the tree.

The natives believe that an evil spirit annoyed with them one night pulled up all the baobab trees and re-planted them upside down. When the trees have no leaves on them they do look as if they are waving their roots in the air! Another superstition of the natives is that because there is an evil spirit in every baobab tree none of them must be cut down. Actually the bark of the tree yields a useful fibre, for making cloth or rope, and natives sometimes excavate the interior of living baobab tree trunks in order to make a dwelling place. It is indeed a useful timber tree, and its bark and leaves are used for making medicines. It also yields a gourd-like fruit that is sometimes known as monkey bread. This has a slightly acid pulp that can be eaten and also provides a drink.

Junior Section



Train spotters in Pakistan are as keen as those of other countries. Photograph by G. Massy Collier, Pinner.

Easy Model-Building

Spanner's Special Section for Juniors

Mechanical Shovel—Drilling Machine

FOR Outfit No. 0 this month I have a neat little Mechanical Shovel, which is shown in Fig. 1. For the base of the model you require a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. Fix two 1" Pulleys on a $3\frac{1}{2}''$ Rod passed through the Plate at one end, and bolt two $2\frac{1}{2}''$ Stepped Curved Strips to the other end.

Bolt two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 1 to the flange of a Trunnion 2, and fix Fishplates to the rear lugs of the Double Angle Strips. Bolt the Fishplates together. Now fix two $5\frac{1}{2}''$ Strips 3 and 4 and a Flat Trunnion to each Double Angle Strip, and pass a Crank Handle through the Flat Trunnions. Use Spring Clips to hold the Crank Handle in place. Pass a $\frac{3}{8}''$ Bolt through the hole at the pointed end of Trunnion 2, and screw a nut on the Bolt. Now pass the shank of the Bolt through a hole in the Flanged Plate, and screw a second nut tightly in place to fix the Bolt in position, leaving the Trunnion free to swivel.

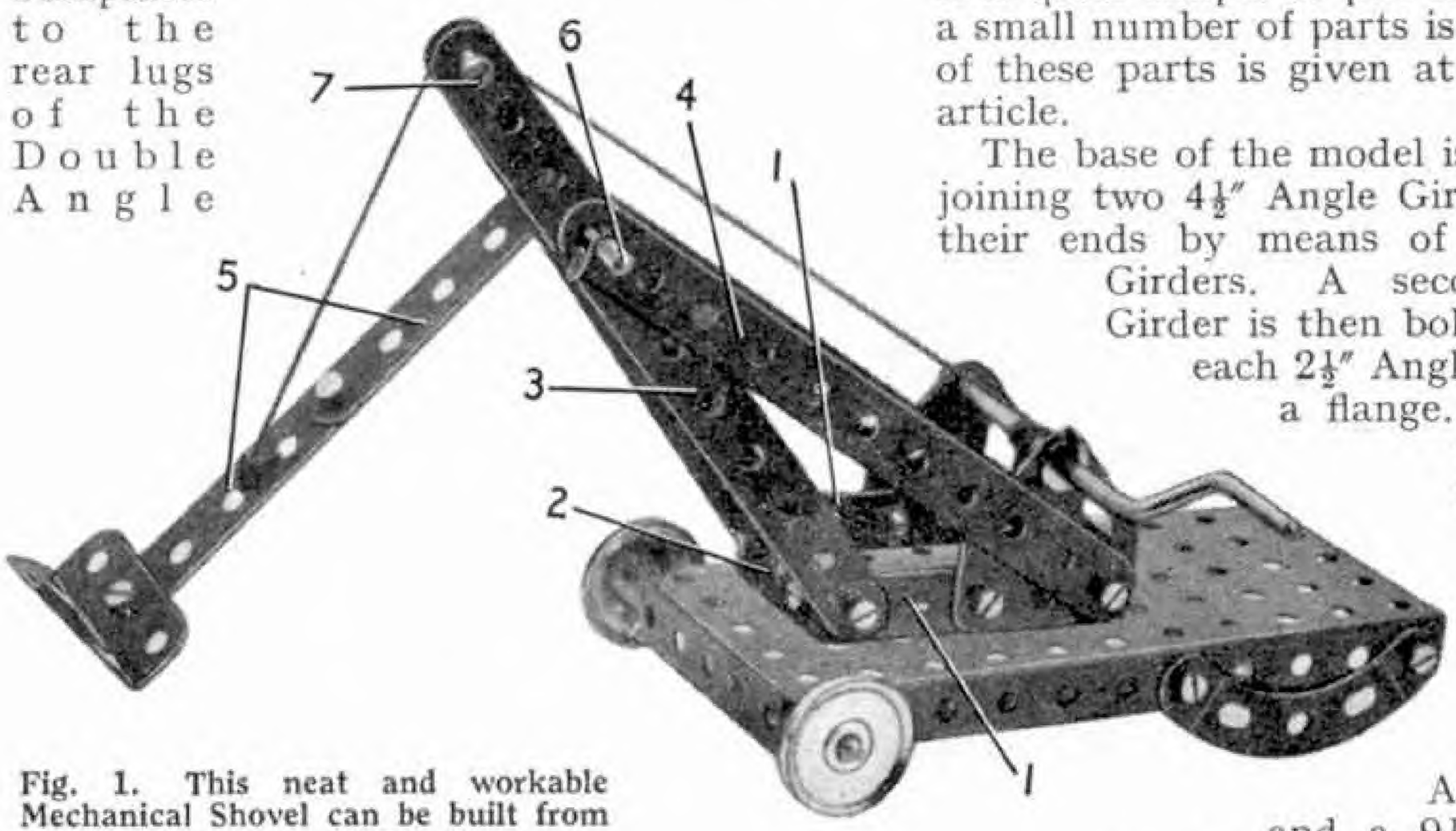


Fig. 1. This neat and workable Mechanical Shovel can be built from parts in Outfit No. 0.

To make the shovel arm bolt together two $2\frac{1}{2}''$ Strips 5. Fix two Angle Brackets to one end of the arm and pivot them on a 2" Rod 6 passed through the Strips 3 and 4 and held in place by Spring Clips. Connect the upper ends of the Strips 3 together by means of a $\frac{3}{8}''$ Bolt 7, and bolt a Trunnion to the lower end of the arm to represent the shovel. To complete the model, tie a length of cord to the Crank Handle, pass it over Bolt 7 and fasten it to the shovel arm.

A list of the parts required to build this model is given at the end of this article.

The Vertical Drilling Machine shown in Figs. 2 and 3 is not designed for construction from a particular Outfit but it is quite simple to put together and only a small number of parts is required. A list of these parts is given at the end of this article.

The base of the model is commenced by joining two $4\frac{1}{2}''$ Angle Girders together at their ends by means of two $2\frac{1}{2}''$ Angle Girders. A second $2\frac{1}{2}''$ Angle Girder is then bolted as shown to each $2\frac{1}{2}''$ Angle Girder to form a flange. To the top of the base, at the front, a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate 1 is bolted.

The sides of the column each consist of a $9\frac{1}{2}''$ Angle Girder 2 and a $9\frac{1}{2}''$ Strip 3. The Angle Girders are bolted at their lower ends to $1\frac{1}{2}''$ Angle Girders bolted underneath the $4\frac{1}{2}''$ Angle Girders of the base. The bolts holding the $1\frac{1}{2}''$ Girder on one side are indicated at 4. The $9\frac{1}{2}''$ Strips also are bolted at their lower ends to these $1\frac{1}{2}''$ Girders. The front and side plating of the column consists of two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates bolted to the $9\frac{1}{2}''$ Angle Girder and $9\frac{1}{2}''$ Strips. At the top of the column a 2" Angle Girder 5 is bolted to the Flexible Plates on each side. One of the Girders is removed in the Fig. 3. The front of the drill head consists of two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates, curved and bolted to two $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips, held by bolts 6 on each side. To the upper Double Angle Strip a 1" Corner Bracket is bolted, to form one of the two bearings for the drill spindle. The other bearing consists of a Wheel Disc 7 bolted at one edge to the lower $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip and at its

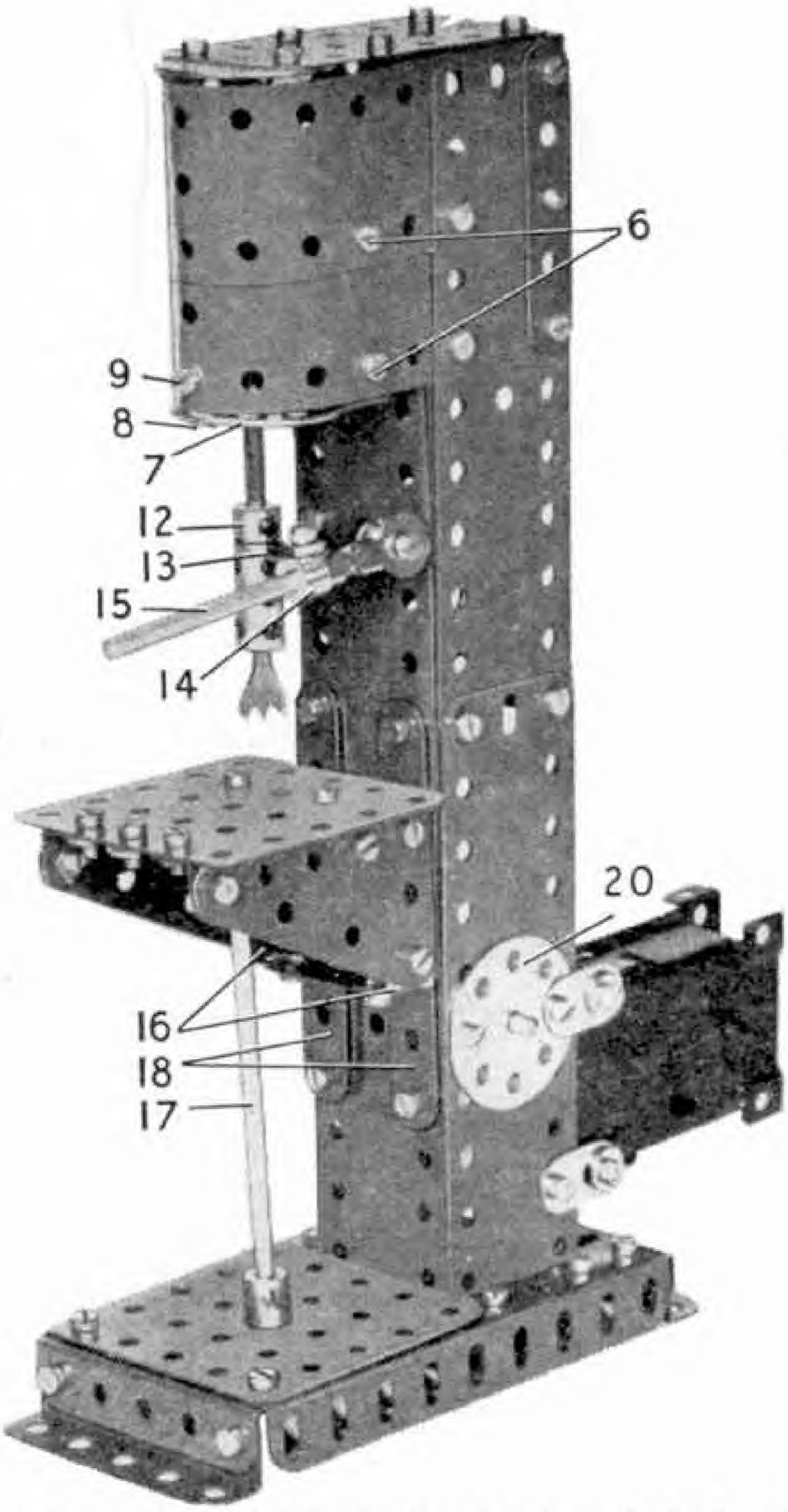


Fig. 2. A Vertical Drilling Machine that will be found interesting to construct and operate. It is driven by a Magic Motor.

opposite edge is held by a Bolt 8 screwed into a Threaded Boss held to the head by the Bolt 9.

The drill spindle is a 4" Rod. It is passed through the Wheel Disc and the projecting hole of the 1" Corner Bracket and is fitted above the Corner Bracket with a Compression Spring 10, a Collar and a ½" Pulley with boss 11. On the lower end of the Rod is a Collar 12, a Fishplate 13 and a Coupling, which forms the chuck in which the drill bit, a Centre Fork, is held. The Fishplate is bolted through its round hole to a Collar 14 on the feed lever 15. The lever is a 2½" Rod held in a Rod and Strip Connector, pivotally attached to a Handrail Support fixed in the column.

The work table consists of a 1½" × 2½" Triangular Flexible Plate at each side. These are each bolted to two 1½" Angle Girders 16 placed face to face with a gap the thickness of a Strip between them. To the upper ends of each Girder a 2½" Strip is bolted at right angles and to the Strip in turn a 2" Angle Girder is fixed. The lower ends of the 1½" Angle Girders are joined by a built-up Double Angle Strip consisting of a 1½" Strip with an Angle Bracket bolted through its slotted hole to each end. The table itself is a 2½" × 2½" Flat Plate and is

(Cont. on p. 143)

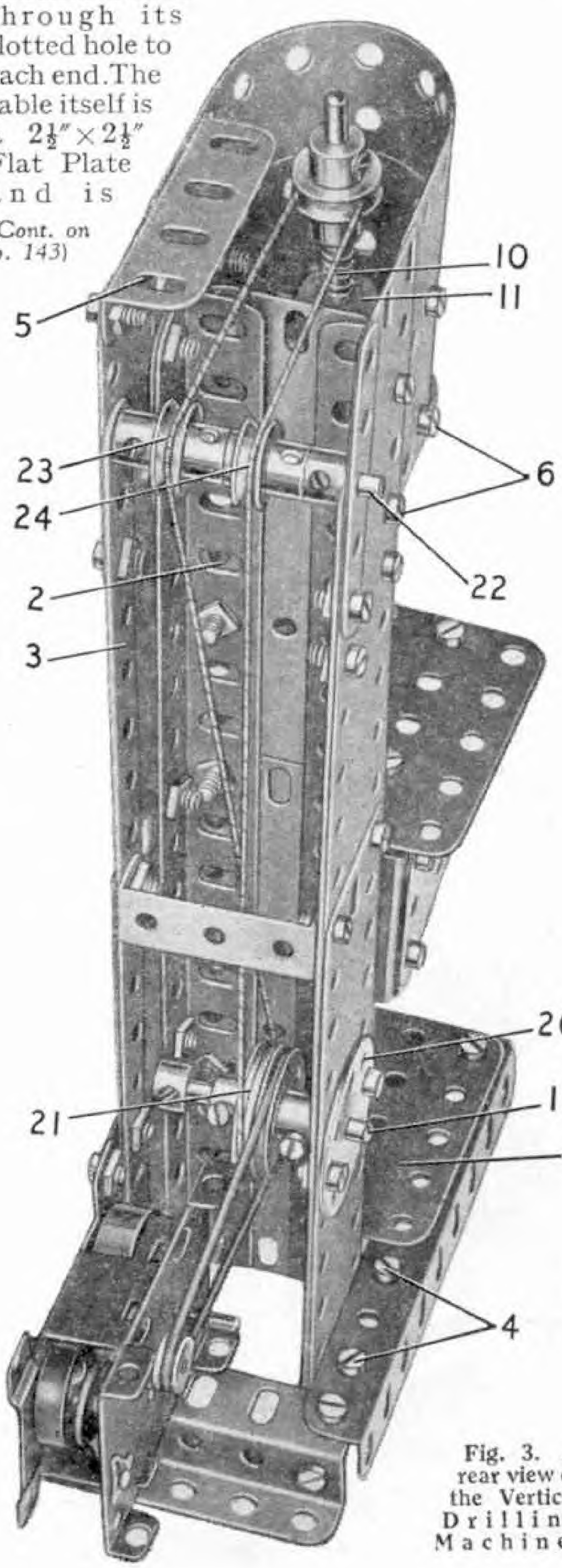


Fig. 3. A rear view of the Vertical Drilling Machine.

DINKY TOYS NEWS

For Dinky Toys Club Members and All Dinky Toys Enthusiasts

By **THE TOYMAN**

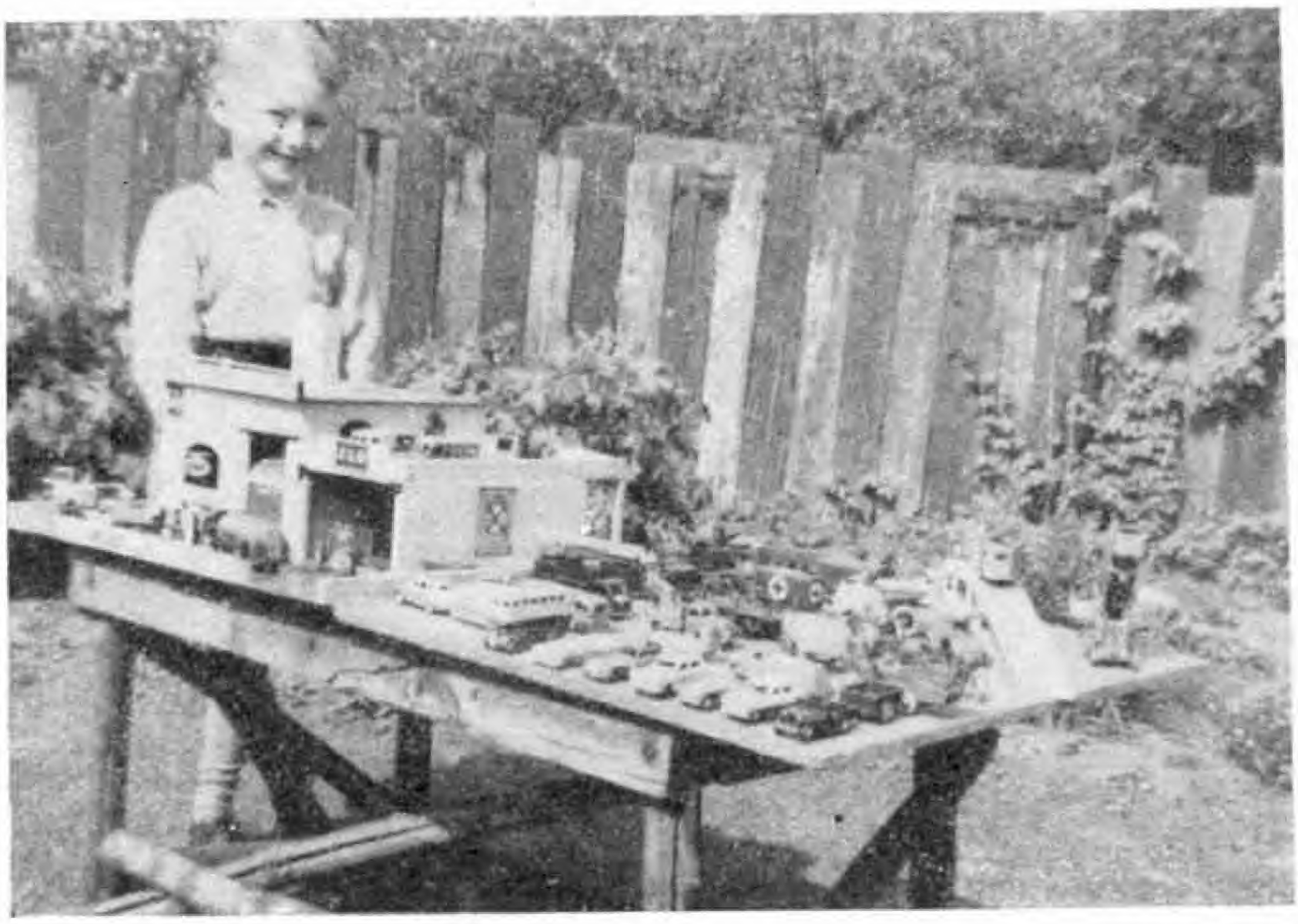
JOINING the Dinky Toys Club must be a recipe for happiness! Just look at the three young men shown in the two pictures on this page and that at the top of the opposite page respectively. Notice their smiling faces, and remember that the one thing they have in common, apart from their obvious happiness, is that they are all members of the Dinky Toys Club and keen Dinky Toys collectors.

The eldest of the three is Ronald Colley, who lives at Chirbury and is a pupil at Welshpool Modern School. Ronald tells me that he is making a garage, which he is going to equip with electric lights, petrol pumps and sliding doors. On the roof of his garage he is planning to lay out a car park. I hope he will succeed in his plans, and as he seems to be a very confident and capable young man I feel sure he will. I hope you will write to me again, Ronald, and send me a photograph of your completed handiwork.



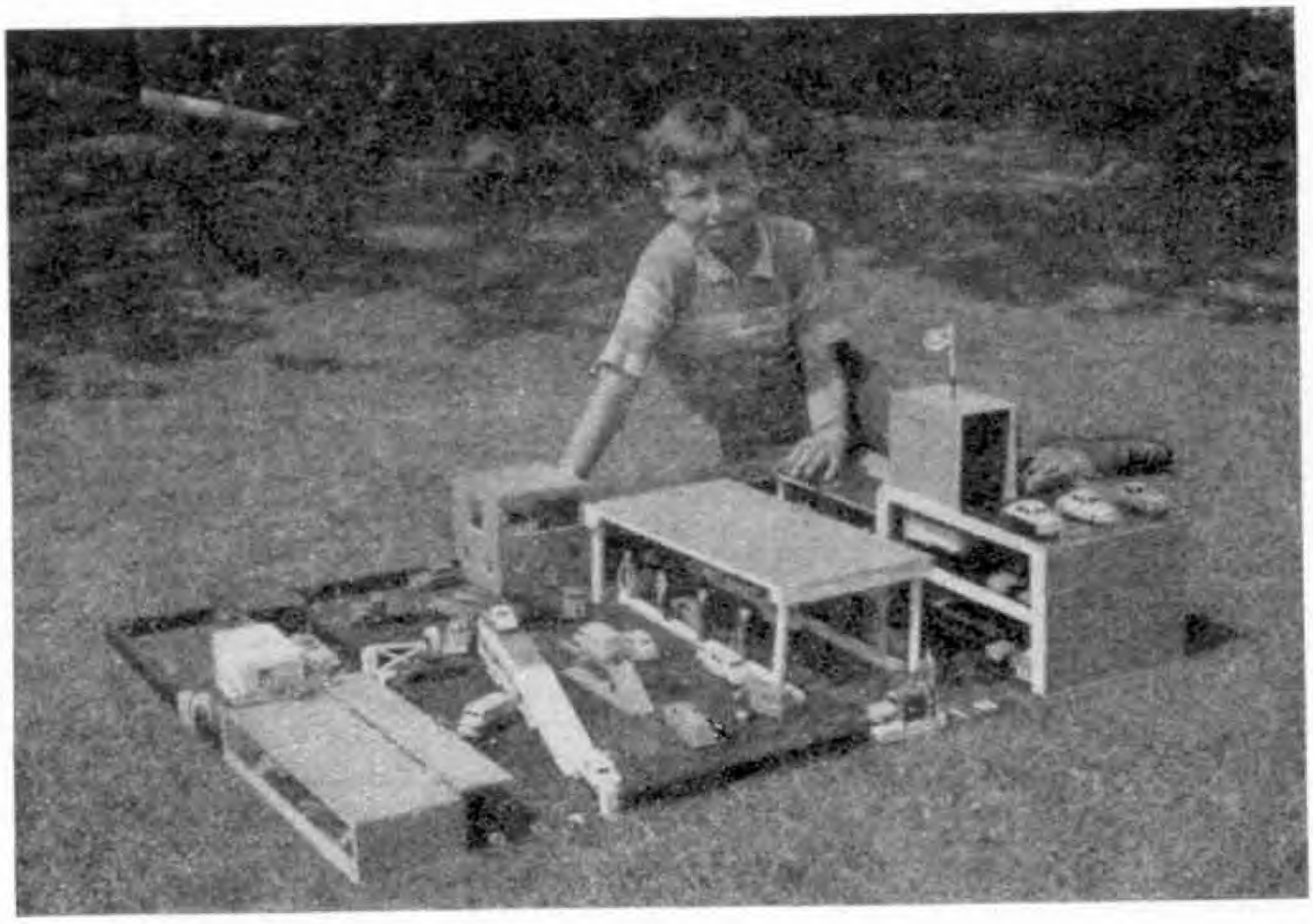
Ronald Colley. This cheerful member of the Dinky Toys Club lives at Chirbury, Montgomeryshire.

Looking like a ray of sunshine himself, is seven-year-old Christopher Bingham, of Hough Green, Widnes, who is seen in the lower picture, in the sun-filled garden at his home. It may not be sun-filled just now, but I am sure the smile is still there. Christopher has a good collection of well-assorted Dinky Toys and is the proud possessor of a splendid garage, seen in the picture, which was made for him by his father.



Christopher Bingham, Hough Green, Widnes, photographed with his Dinky Toys and garage layout.

The third happy Dinky Toys Club member, seen in the picture at the top of the next page, is Neil Collie, of Wilmslow, Cheshire. Neil is shown playing with a fine garage layout that was made for him by his father, with



Many Dinky Toys collectors will be envious of this fine garage and motor showroom layout owned by Neil Collie, Wilmslow.

Neil and his father have earned congratulations by their handiwork.

Now for some news about the latest Dinky Toys, available this month. Probably you will already have heard about the new Dublo Dinky Toys series, the first three items of which appeared in the shops in December. As we expected, they were enthusiastically welcomed by Hornby-Dublo Train owners as well as Dinky Toys collectors, by the former because they are designed to the same scale as Gauge 00 trains, and by the latter as fine new Dinky Toys. They are ideal for use with Hornby-Dublo railway layouts, and many boys who are interested only in Dinky Toys collecting are now making a point of starting a separate collection of the latest smaller gauge models.

Following the first three models introduced in December, there have been made available this month the three distinctive and attractive models shown

Neil's help. Fathers are useful! But I suspect that practically all of them are Dinky Toys enthusiasts themselves.

One of the features of Neil's garage is that it has three floors, connected by a lift. Sheds are provided for large lorries and there is also an office building, a showroom and a car park. Cars enter the showroom at the back through an opening produced by raising a flap, for which purpose there is a Meccano mechanism. Ten petrol pumps are provided and an inspection ramp. In addition to all these there is a house for the proprietor complete with its own private garage! All the buildings are very attractively finished in green and white.

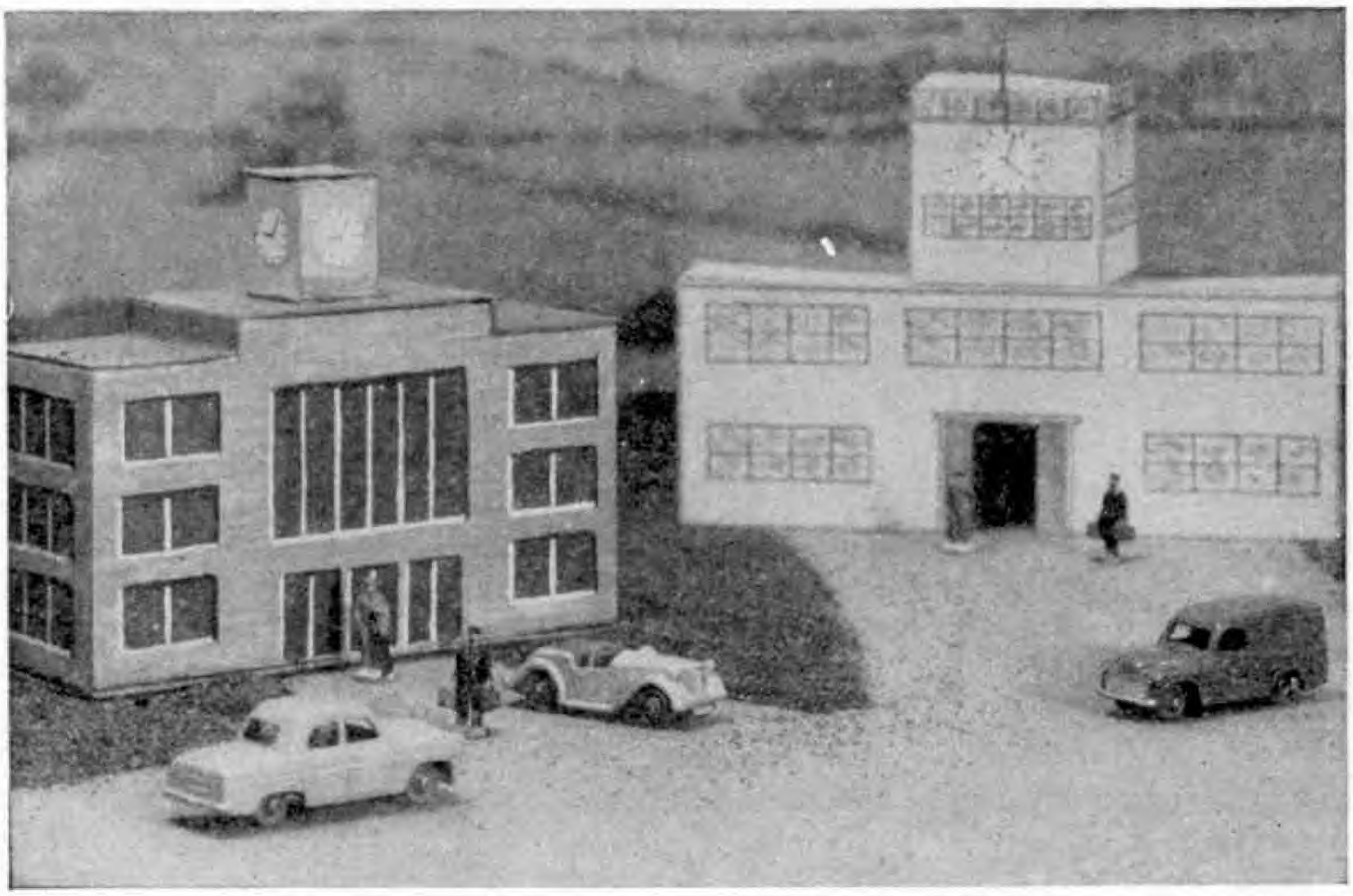
I am sure many of you will be envious of this fine garage layout, which provides so much scope for Dinky Toys activities.







Three additions to the range of Dublo Dinky Toys. (Right) No. 063, Commer Van. (Below No. 062, Singer Roadster. (Bottom right) No. 061, Ford Prefect.



The three new Dublo Dinky Toys seen outside the administrative buildings of an airport layout. They are the Ford Prefect, Singer Roadster and Commer Van.

in the lower pictures overleaf. They are a Commer Van, a Ford Prefect and a Singer Roadster respectively. The Commer Van is Dublo Dinky Toys No. 063 and, as you will see from the picture, it has a beautifully moulded front and a very modern appearance. It is finished in a striking shade of light blue, which tones well with its silver radiator grille and bumpers. It runs on plastic wheels.

Dublo Dinky Toys No. 061 is an accurately designed and detailed model of the popular Ford Prefect. It is finished in stone colour with silver grille and plastic wheels.

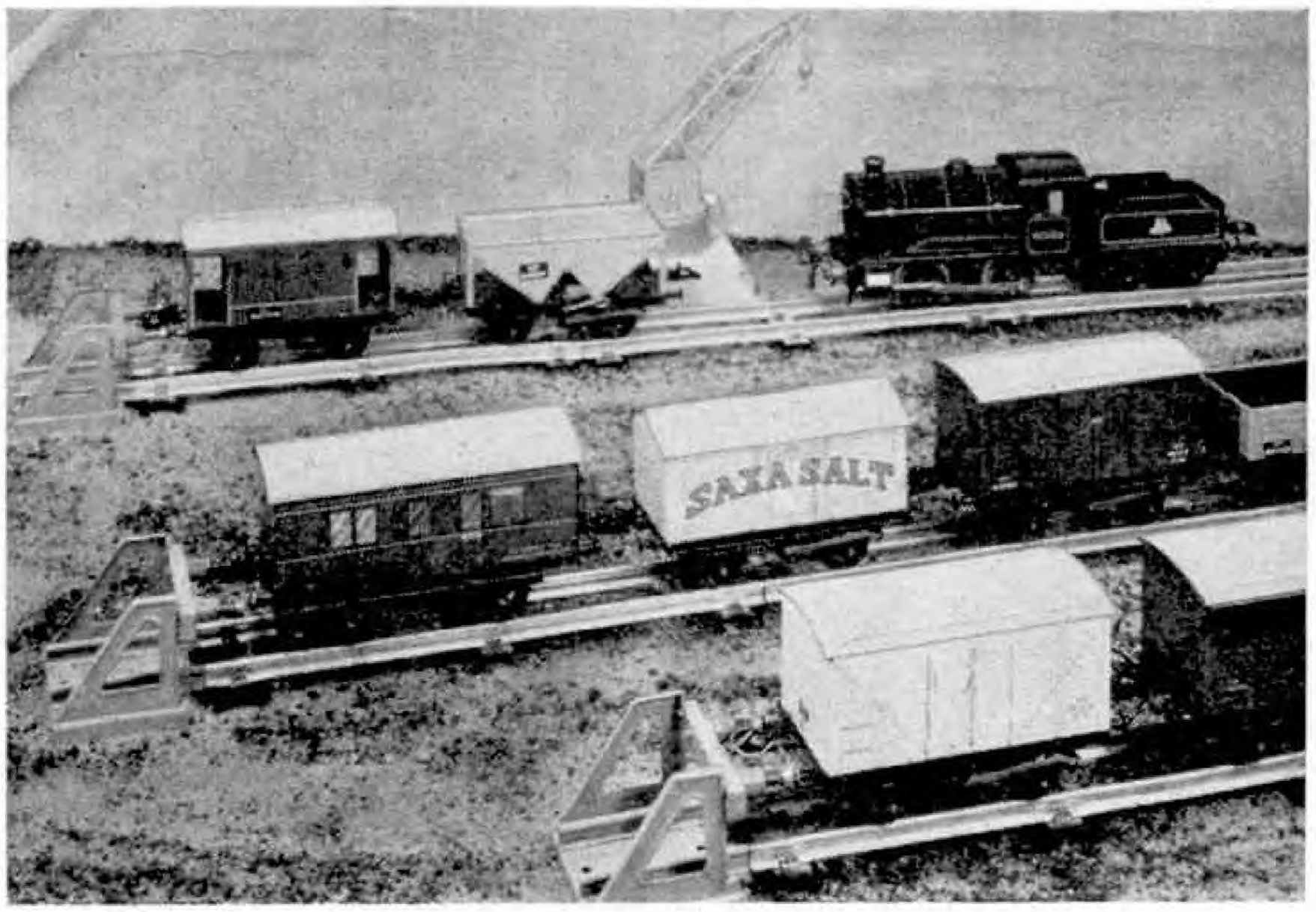
Lastly I come to the Singer Roadster, which is catalogued as Dublo Dinky Toys No. 062. To me this is the most attractive of the three new items, but that is only to be expected, because I have a personal liking for sports cars in real life! It embodies really good detail in view of its size and it is most strikingly finished in brilliant yellow with red seats and dashboard. A silvered radiator grille and bumpers, neatly moulded headlights and plastic wheels combine to produce a very pleasing and realistic reproduction of the actual car.

In the lower picture on this page is the new Tanker that is now available. This is Dinky Supertoys, No. 943, Leyland Octopus Tanker "Esso."



Dinky Supertoy No. 943, Leyland Octopus Tanker "Esso."

"Tommy Dodd" writes about



Fun in the Goods Yard

LAST month we had a talk about Hornby Rails and of course Buffer Stops were mentioned, because these form a necessary part of the rail system. They are wanted to finish off siding tracks, such as those shown in the picture above. Just think how unfinished the rails—and the yard—would look if the Buffer Stops were not there!

We must have Buffer Stops at the end of tracks just in case a train, or perhaps an odd vehicle being shunted, tries to run too far. But we must also have them for the look of things! There is a curious fascination about them, whether real or miniature, possibly because we always tend to have in mind what a smash there would be if a train did run into them at speed!

The Hornby Buffer Stop has a short length of track to allow it to be joined readily to the end Rail of the siding. On a temporary layout it is very important to include the Rail Connecting Plate at this joint, so that the Buffer Stop is firmly anchored to the rest of the track. Otherwise an engine or train that did run away might actually knock the Buffer Stop off the end of the siding. Only on a permanent railway, with the track screwed down to the baseboard, can the Connecting Plate be omitted.

At the head of the page is a picture showing a yard scene on a Hornby Layout, with a Platform Crane in the background. Each siding is correctly finished off by means of a Buffer Stop.

All this talk leads us to think of goods yards and here again the picture above has a suggestion for us. In the background is that familiar Hornby accessory the Platform Crane. This is very useful indeed, and it really works. The hook with its characteristic ball-shaped weight is easily raised or lowered by means of a crank handle, passing through the lower part of the jib structure, and it turns round for use anywhere within reach.

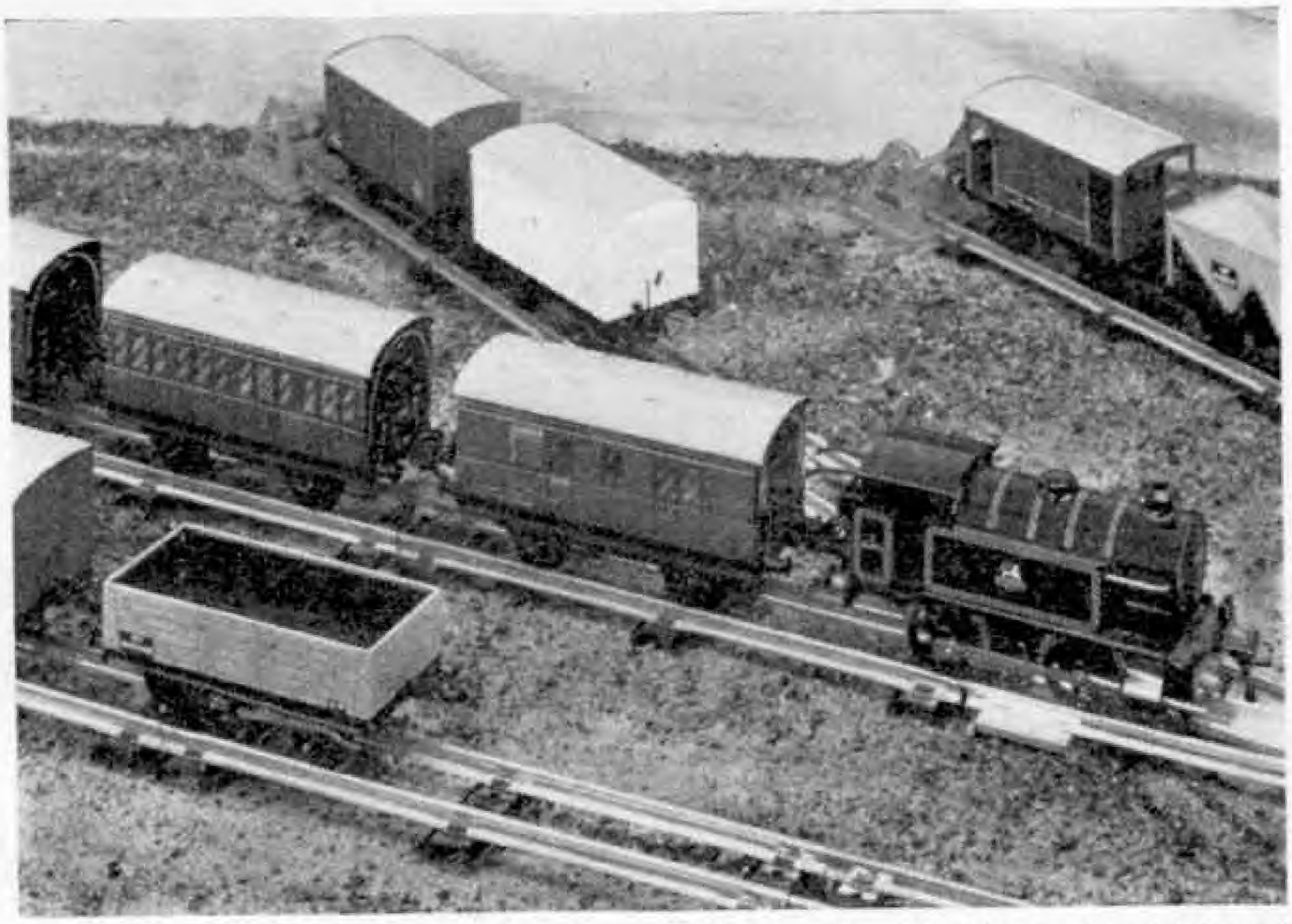
For work in the goods yard some Hornby railway owners prefer the more recently introduced Goods Yard Crane, which is also listed as Dinky Supertoy No. 973. This has a useful additional movement, for the jib itself can be raised or lowered. This gives a combination that allows a load to be picked up and spotted exactly in the rail or road vehicle in which it is to travel. The Crane jib is of the hammerhead type, which increases its effectiveness, and even such bulky items as Hornby Furniture or Insulated Meat Containers can be handled by it. Crane driving in miniature is quite

a fascinating business. Just try it!

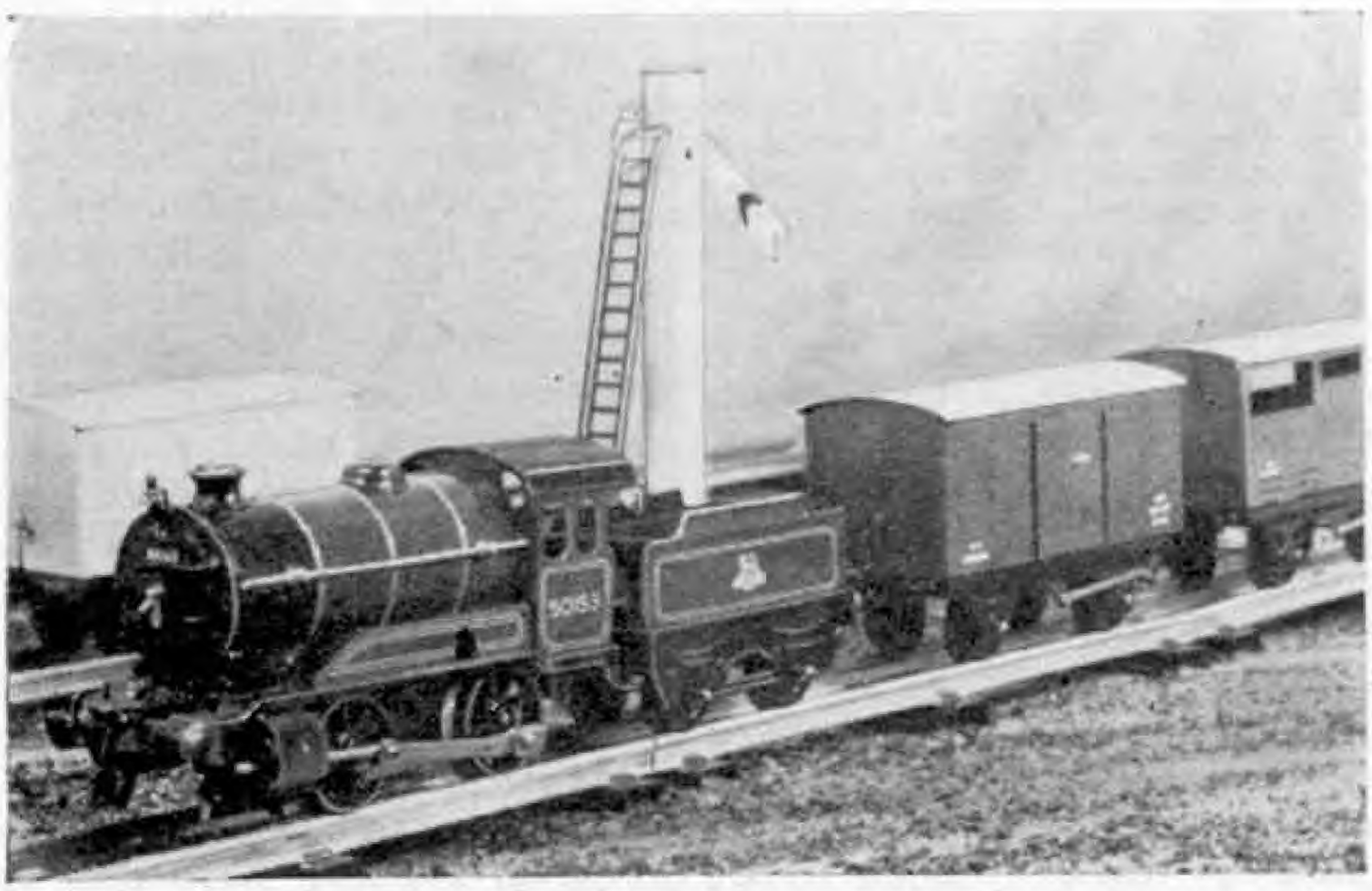
Another Dinky Supertoy that is specially useful in the goods yard is No. 971, Coles Mobile Crane. Its turning and derricking movements, and its mobility, make it a really valuable appliance.

The Signal in the lower illustration on this page reminds me that it is quite some time since we had a word on this subject. Those of you who are H.R.C. members will know that there is a useful section on signalling and its application to a miniature layout in the H.R.C. booklet that all members receive. Signals give a really spectacular look to a layout, besides being useful. They help to "make" a railway. As a rule it is best to use them alongside the main line only, as if one attempts to cover every movement into and out of sidings by means of individual Signals, the layout soon becomes overcrowded. The miniature railway owner must use his judgment in this matter.

Probably most of you know that the Signal shown here is what is called a distant signal. This is a warning signal and can be passed when its arm is in the horizontal or *Caution* position, for this indicates to a driver that he is likely to have to stop at the next "Home" or "Stop" signal, unless this has assumed the *Line Clear* indication in the meantime. The train shown in our picture has a clear road ahead, for the distant cannot show *Line Clear* unless the next Signal has already been placed in this position. In real practice interlocking arrangements look after this, but in miniature on a Hornby railway the signalman simply makes it a rule not to set any Distant Signal at *Line Clear* until the corresponding Home or Stop Signal is showing this indication.



Here the main line passes several sidings on which various Hornby goods vehicles are standing. The passenger train consists of No. 41 rolling stock.



The through freight train in this picture has a clear road ahead, as shown by the position of the arm of the Distant Signal.

The Home Signal is of course the one with the red painted arm—the Distant is yellow—and the outer end is not fishtailed, but plain or square. Sometimes when signalling sections are short the two types of arm are found on the same post, the square-ended arm being always above the other. Both can show *Line Clear*, or the Home arm alone may do so, but not the Distant on its own—something else to be remembered, when the Hornby Double Arm Signal is in use!

Of General Interest

On 24th August, 79, the city of Pompeii at the foot of Mount Vesuvius, near Naples, Italy, was overwhelmed by a great eruption of the volcano, and it is estimated that some 2,000 of its inhabitants perished—most of them being suffocated by the sulphurous fumes.

That of course was a very long time ago; but only comparatively recently was Pompeii excavated Today it must surely rank as the most tidy "ruin" in the world, as the upper picture on this page shows.



A street in ancient Pompeii. Photograph by B. T. Croft, Cranleigh.

On his picture B. T. Croft calls attention to the stepping-stones across the street, allowing for the width of the Roman chariot wheels.

The lower picture on this page shows a scene that may be familiar to many readers of the *M.M.* It is to be found in Rye, Sussex, one of the ancient Cinque Ports, and includes what is known as the Landgate.

This is a reminder of the ancient history of Rye. It was built as long ago as 1340, and is the only one now surviving of four gates that were erected on the lines of the town's walls by Edward the Third. Interesting features are the machicolations over the archway, and a notable point is that the groove for the exterior portcullis can still be seen. Visitors to Rye also find interest in the parish church, which is known locally as the Cathedral of East Sussex, as well as in its narrow streets and old houses.



In ancient Rye, one of the Cinque Ports. The road passes through the Landgate, built over 600 years ago. Photograph by J. A. Fleming, Hampstead Heath.



Canso amphibian of Aeromagnetic Surveys Ltd., Toronto, flying with an electro-magnetometer towed 500 feet behind the plane.

Air Search for Canadian Minerals

By James Montagnes

VAST remote areas throughout Canada are being explored for mineral deposits by an increasing number of airborne aids. The aircraft concerned fly at levels of 500 feet above the ground, photograph it, study the Earth's magnetic field with a magnetometer, record the radioactivity of the area with scintillation counters, and with an electromagnetometer trailing 500 feet behind the aircraft directly locate sulphide bearing ores that may contain copper, lead, zinc or nickel.

The airborne magnetometer, recording the magnetic field, aids geologists in the search for iron, oil, asbestos, titanium and nickel. The scintillation counter tells of the presence of uranium-bearing ore.

To find ore bodies electro-magnetically, equipment is used in which an alternating current is passed through a coil of wire, strung between the tail and wings of the aircraft. Any metallic body that is an electrical conductor will react to this airborne magnetic field, and this is detected by a torpedo-like instrument called a "bird", trailing behind the aircraft on a 500 foot cable. It can detect ore bodies 300 feet deep underground while flying at heights of 500 feet, but at a higher flight level it is less effective.

Interference in detecting ore bodies comes from graphite, lakes, rivers, swamps and moist overburden, since all of these are conductors of varying degree, and special measures have to be taken to allow for this.

Flights are made along traverse lines about one-eighth of a mile apart, each flight testing a swathe from a height of 400 to 500 feet above the ground. When passing over an ore body the recording needle shows a sharp upward deflection on the graph on which the record is made. By flying a number of spaced traverse lines in the area, locations of the various ore deposits are accurately pin-pointed. Diamond drill tests made from these electronic records have proved the accuracy of the method in various parts of Canada and the United States.

To make the equipment more versatile and useful in mountainous and canyon-like regions, where flying fixed-wing aircraft at low levels is dangerous, refinements have been introduced to allow the use of helicopters. Changes had to be made to locate the transmitting coil, and the equipment consists of a 20-foot long "bird" containing both the transmitting and receiving equipment. The "bird" is towed below and behind the helicopter.

Meccano Competition

Prizes for Models of All Kinds

FROM all parts of the world, entries are pouring in for the "New Year" Model-Building Competition, in which Cash Prizes are offered for the best original models of any type built by owners of Meccano Outfits. This Contest closes for entries on 30th April next, and although time is now getting short, it is still possible for model-builders who have not yet sent in entries, to set about doing so.

The following details of the conditions of the Competition will tell you all you need to know in preparing your entry. One of the chief points is that the Contest is open to readers of all ages, but to give the younger competitors fair chances of success, the entries from competitors who will be under 12 years of age on 30th April next will be grouped into one Section (A). Entries from competitors who will be aged 12 or over on 30th April will be placed in Section (B).

It should be noted that a separate set of Prizes will be awarded in each Section. Details of these Prizes are given in the panel at the end of this announcement.

The next important point to note is that models for entry in this Competition can be of any kind whatever, and any size of Outfit or quantity of parts may be used in building them. Each model must be the competitor's own unaided work and it must be built entirely from Meccano parts.

When you have built your model the next thing is to prepare your entry. Please note that the actual model must not be sent. You should obtain a good photograph of it or, if this is not possible, make a neat sketch. Now for a very important condition: You must state on the back of the sketch or photograph your name and full address and also the age you will be on 30th April, 1958 You can send with your entry a short description of the model and its main features. Address the envelope containing your entry to "New Year Model-Building Competition, Meccano Ltd., Binns Road, Liverpool 13", and post it in good time to reach Liverpool on or before 30th April.

A small and neatly built model will stand a far better chance of success than a larger but scrappily built structure, so don't be put off or discouraged because you have only a small Outfit. Sail in with determination and you will have a fair chance of finding yourself among the prize-winners.

THE PRIZES

The following prizes will be awarded in each of the Sections A and B.

	£	s.	d.
First Prize, Cheque for	4	4	0
Second Prize, Cheque for	2	2	0
Third Prize, Cheque for	1	1	0
Ten prizes, each of		10	0
Ten prizes, each of		5	0

Closing Date for Entries: 30th April, 1958.

Easy Model-Building—(*Continued from page 135*)

bolted to the horizontal 2" Angle Girders. The Rod 17 is fixed in the Boss of a Crank bolted underneath the centre of the table and at its lower end is held in a Rod Socket. The flanges of the 1½" Angle Girders at the back of the work table serve to attach the table to the column. A 3½" Strip 18 is placed in the gap between each pair of these Angle Girders and is then bolted at each end to the column. Each holding bolt is pushed through an end hole of the Strips, a Washer is placed on its shank and then the bolt is passed through a second 3½" Strip and through a hole in the column, when it is fitted with a nut tightened up securely.

A *Magic* Motor is attached to the rear of the column by means of two Fishplates as shown. The Motor Pulley drives by belt a 1" Pulley with Boss fixed on a Rod 19 supported in reinforced bearings consisting of two Wheel Discs 20 attached to the Flexible Plates forming the sides of the column. A second 1" Pulley 21 is fixed on the Rod.

A 2" Rod 22 passed through the upper end holes of the 9½" Strips, Flexible Plates and a 2½" Strip bolted on the outside of each side of the column, is fitted with two ½" Pulleys 23 and 24, which are free on the Rod. The Rod is held in place by two Collars.

A length of Cord is passed around the 1" Pulley 21, over the Pulley 23, around the Pulley on the drill spindle, over the Pulley 24 and finally the ends are joined to form an endless belt.

Parts required to build the Drilling Machine: 2 of No. 1a; 4 of No. 3; 4 of No. 5; 1 of No. 6a; 2 of No. 8a; 2 of No. 9a; 4 of No. 9d; 2 of No. 9e; 7 of No. 9f; 3 of No. 10; 2 of No. 12; 2 of No. 15b; 1 of No. 16a; 2 of No. 17; 2 of No. 22; 3 of No. 23a; 4 of No. 24a; 59 of No. 37a; 59 of No. 37b; 10 of No. 38; 1 of No. 40; 3 of No. 48; 5 of No. 59; 1 of No. 62; 1 of No. 63; 1 of No. 64; 1 of No. 65; 2 of No. 72; 1 of No. 73; 1 of No. 120b; 1 of No. 133a; 1 of No. 136; 1 of No. 179; 8 of No. 189; 1 of No. 212; 2 of No. 221; 1 *Magic* Clockwork Motor.

Parts required to build the Mechanical Shovel: 4 of No. 2; 2 of No. 5; 2 of No. 10; 2 of No. 12; 1 of No. 16; 1 of No. 17; 1 of No. 19s; 2 of No. 22; 4 of No. 35; 22 of No. 37a; 18 of No. 37b; 3 of No. 38; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 2 of No. 111c; 2 of No. 126; 2 of No. 126a.

Among the Model-Builders

By "Spanner"

A Simple Intermittent Drive

M. Tucker, Lyddington, Wiltshire, sent me details of a very simple intermittent drive mechanism he designed, and the arrangement shown in Fig. 1 is based on his idea. The mechanism is suitable for light drives, and as it requires only two gears it should prove useful to model-builders whose stocks of parts are limited.

The framework for the mechanism consists of 2½" Angle Girders connected by Strips. A Rod fitted with a 57-tooth Gear is mounted in a round hole of one of the Angle Girders and in the slotted hole of another Girder. This Rod is the mechanism input shaft, and the Gear must be placed on the end of the Rod mounted in the slotted hole. The Gear is spaced from the Girder by two Washers, and it is fitted with a ⅜" Bolt that carries five Washers.

The output shaft is mounted in round holes in the lower Girders. It is fitted with a 1" loose Pulley and a ½" Pinion. Normally the 57-tooth Gear drives the Pinion,

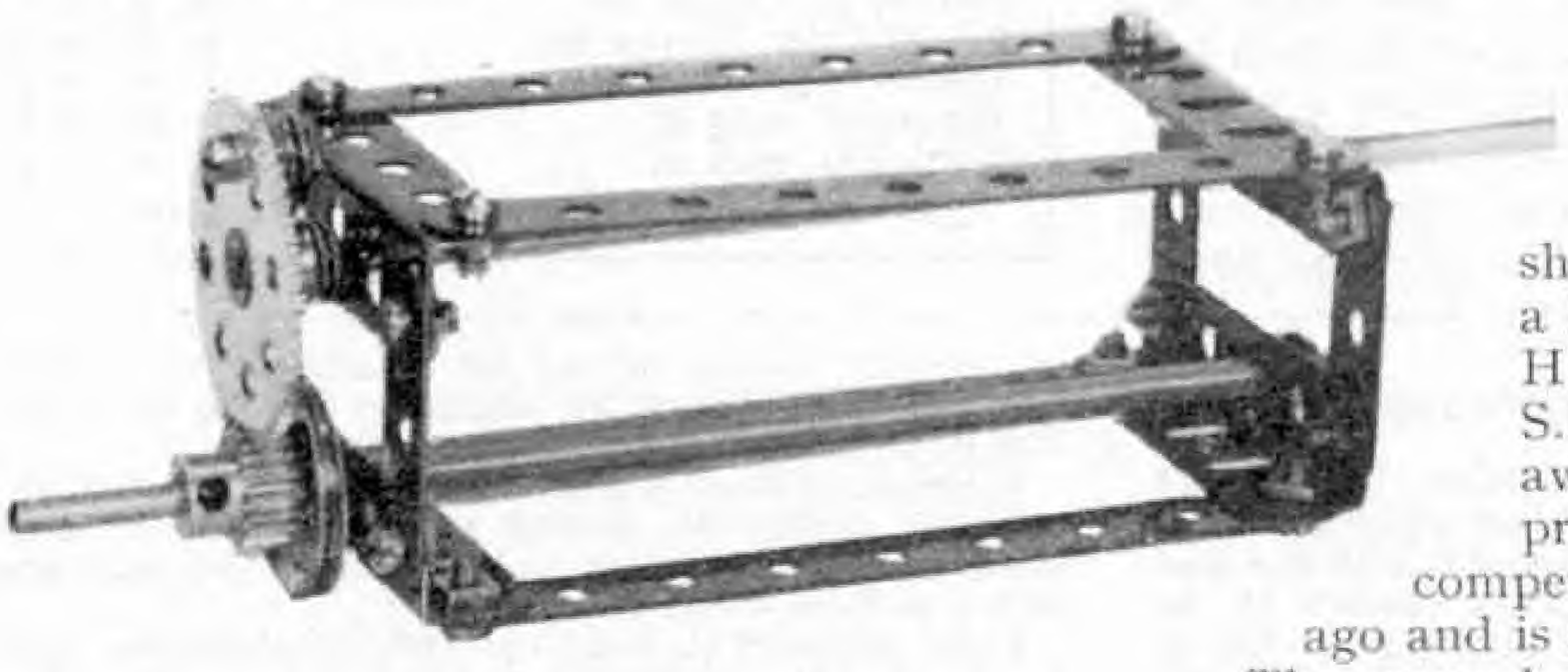


Fig. 1. Simple intermittent drive mechanism.

but as the Washers on the ⅜" Bolt engage the 1" Pulley they cause the input shaft to lift in the slotted hole in which it is mounted. This raises the 57-tooth Gear clear of the ½" Pinion, and thus disengages the drive until the shaft falls again to the lower limit of the slotted hole. This process is repeated with each revolution of the input shaft and the 57-tooth Gear.



Laurence Sams, Swindon, highly delighted with a copy of the Meccano catalogue.

A New Meccanograph Crown Head

The tremendous demand for copies of the instructions for the Meccanograph featured in the *Model of the Month* series last year has proved beyond all doubt the popularity of these designing machines, and I am sure many model-builders will be interested in the novel form of Meccanograph crown head shown in Fig. 3. The crown head is one of the most important features of a Meccanograph, as its design governs to a large extent the variety of the patterns produced by the machine. The example shown in Fig. 3 was fitted to a Meccanograph built by Mr. H. J. Halliday, London S.E.15. This model was awarded one of the main prizes in a model-building competition organised some time ago and is shown in Fig. 2.

The crown head is cam-shaped, the parts used being a 1½" Strip, 1 2½" Curved Strip, and a 2½" Stepped Curved Strip. These parts are bolted together and attached to the face of a Bush Wheel. A series of Threaded Pins or ½" Bolts is fixed by nuts in the Strips as shown, and each Threaded Pin or Bolt carries a Collar.

A Pawl is fixed on a 1" Rod, which is passed through the overlapped holes of the Curved Strips and is held in place by a Collar. A 2½" Driving Band is looped round



A model of the Albion "Chieftain" built by Mr. S. Reid, Aberdeen. The dog had to be given a ride on the lorry! Photograph by L. Guest, Aberdeen.

a bolt fixed in the Pawl by two nuts, and is looped over the Rod on which the crown head is mounted. The Pawl engages the teeth of a 1" Gear, which is fixed on the Rod, and transmits the drive from the Rod to the cam-shaped crown head. The Bush Wheel is free to rotate on the Rod and is held in place by a Collar.

The pen arm of the Meccanograph should be arranged to slide between Fork the lugs of a Large Piece, the boss of which is placed on one of the Threaded Pins, $\frac{1}{2}$" Bolts or the 1" Rod. It will be seen that owing to the shape of the crown head, the distance of the Fork Piece from the driving Rod can be varied by adjusting its position on the Threaded Pins, and this in turn alters the movement of the pen arm. Further variations in the patterns produced by the machine are possible by altering the position of the Bush Wheel in relation to the 1" Gear.

Designing machines offer plenty of scope for experiment in the construction of novel mechanical arrangements, and even a machine of the more simple type can be rendered capable of producing a wide variety of patterns by incorporating a well designed crown head, such as that described here.

The picture of the completed Meccanograph in which this crown head was incorporated is included here, as we think it may give model-builders a few ideas for use in models of their own, but it should be noted that we are not in a position to supply full constructional details of it. Readers who would like to construct a Meccanograph will be interested to know perhaps that a simple model of this kind is described in the Instructions Book for Outfit No. 8.

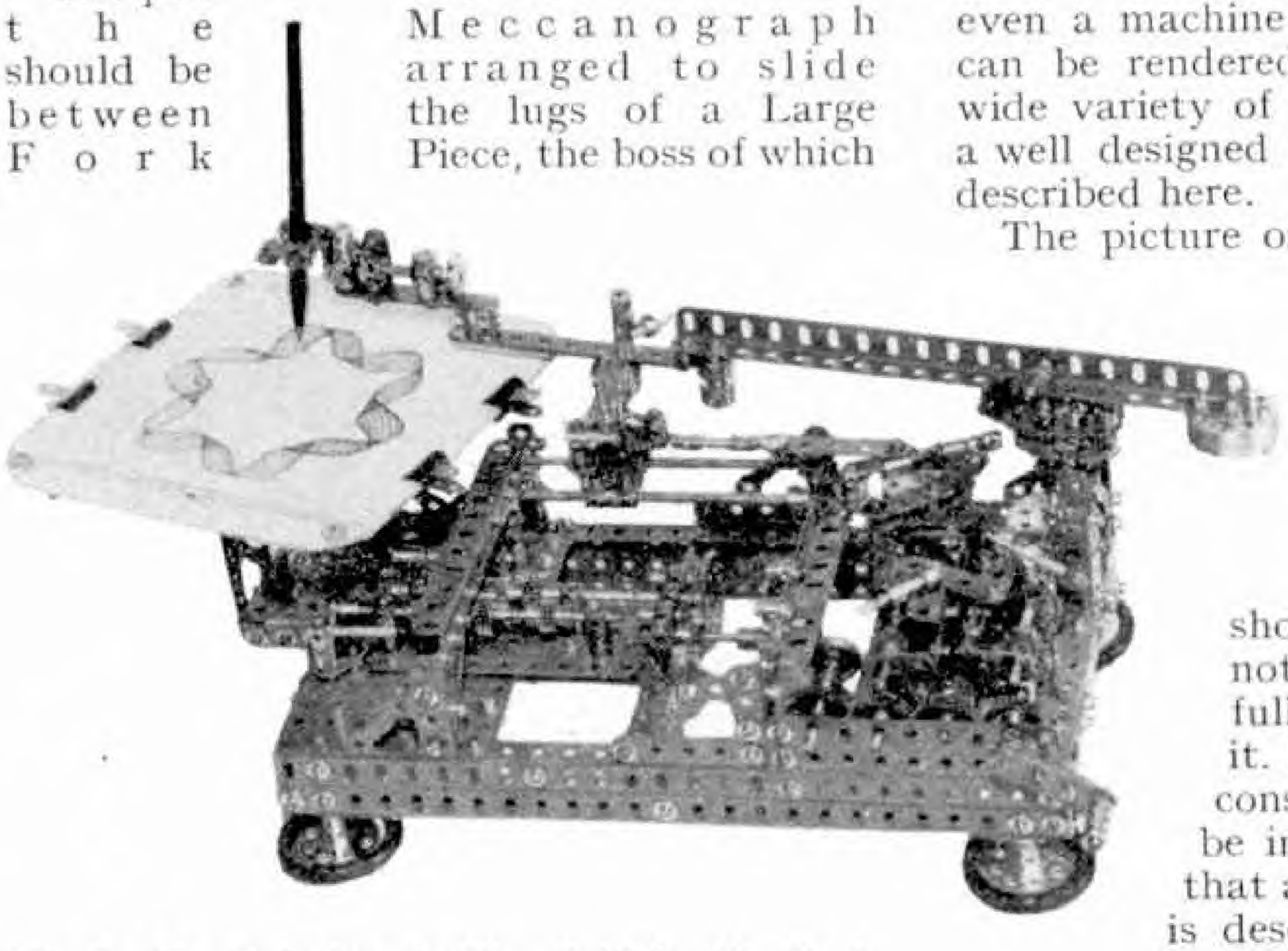


Fig. 2. The designing machine, built by Mr. H. J. Halliday, referred to on this page.

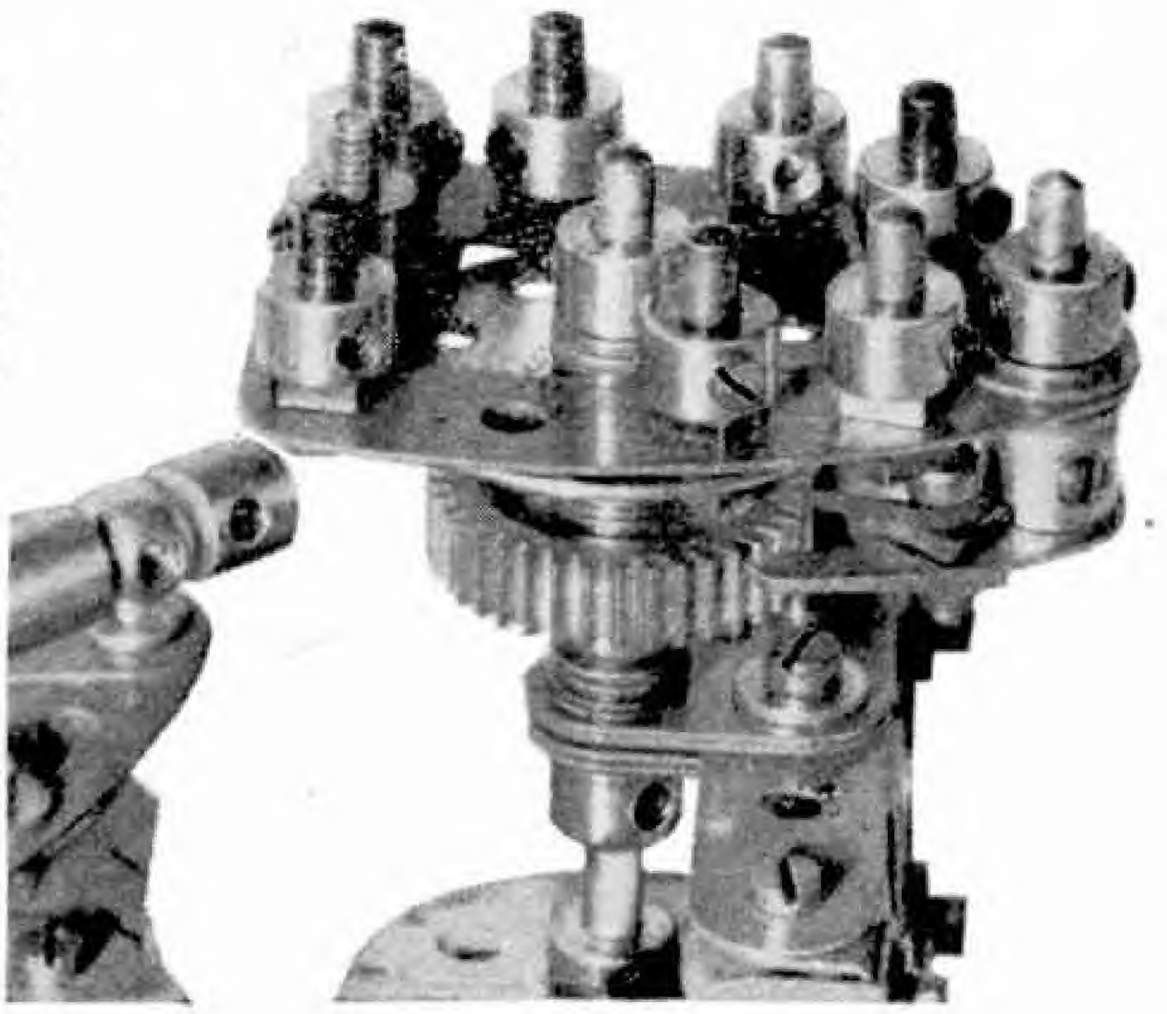


Fig. 3. The crown head of Mr. Halliday's designing machine.

MODEL OF THE MONTH

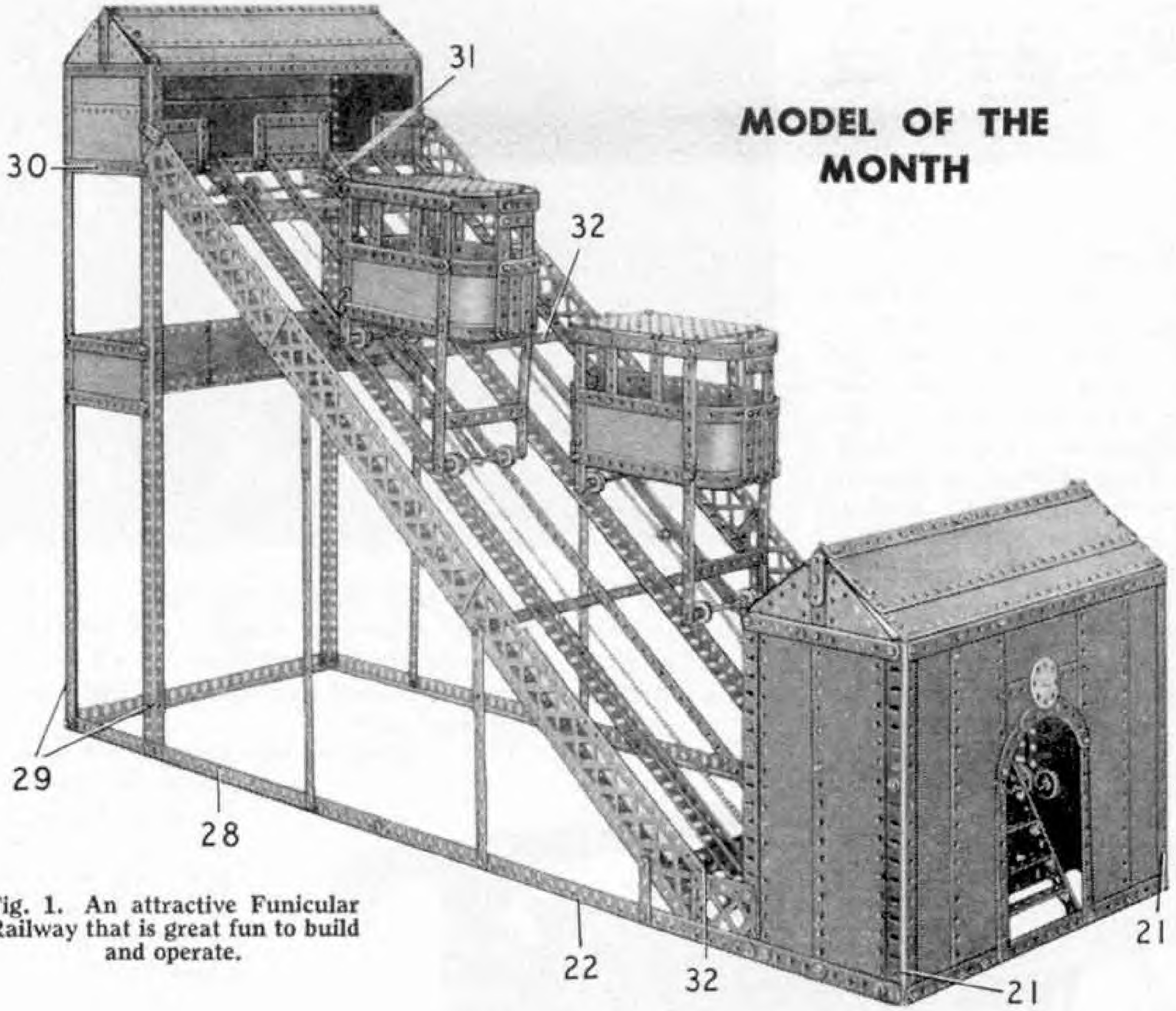


Fig. 1. An attractive Funicular Railway that is great fun to build and operate.

Funicular Railway

THE model of the Funicular Railway illustrated this month is an extremely attractive one to build and operate. It is based on one of the cliff railways that are installed at some holiday resorts where provision has to be made for carrying holiday-makers from the top of high cliffs down to the shore—and

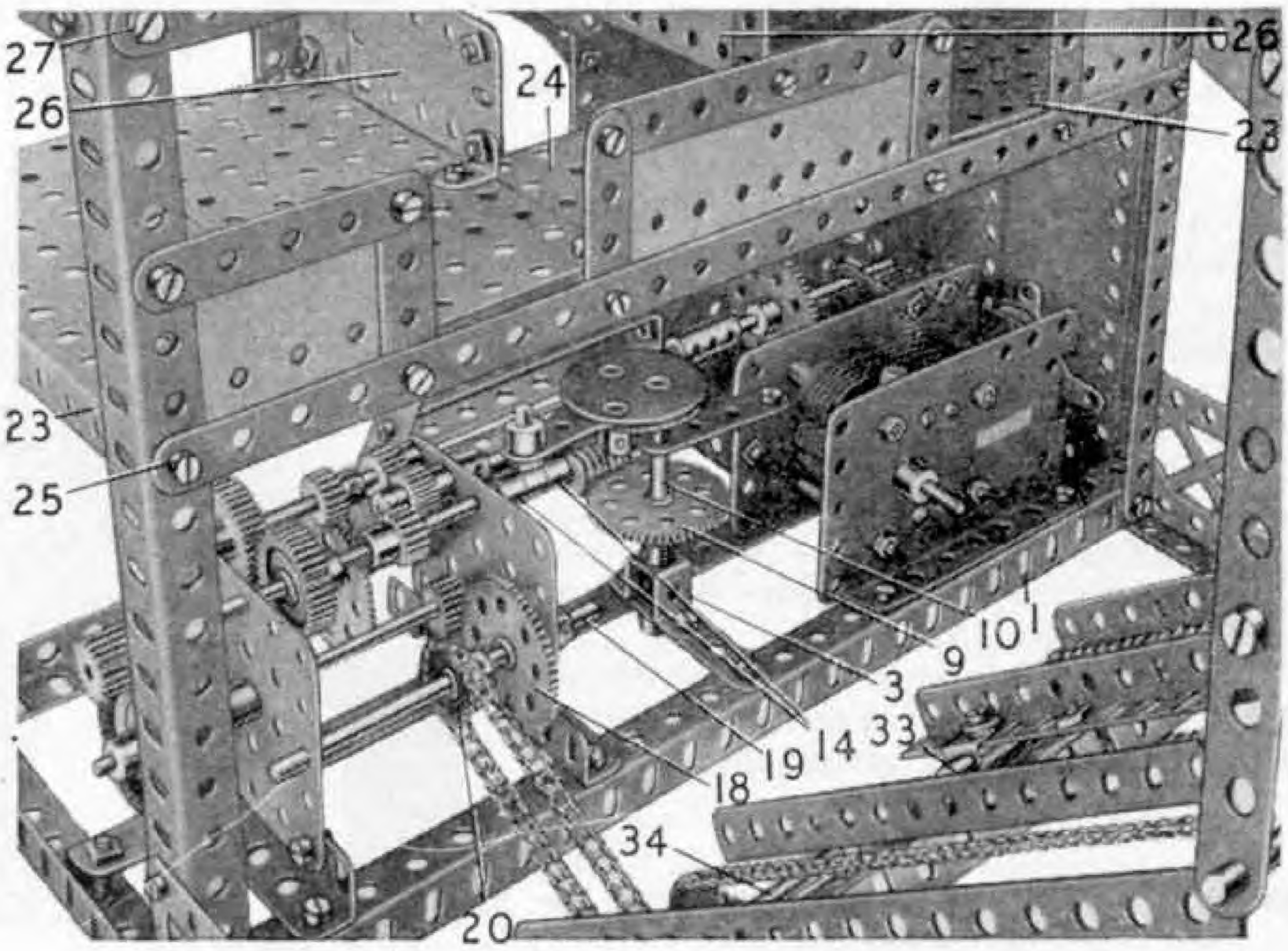


Fig. 2. A view of the automatic reversing mechanism and Motor.

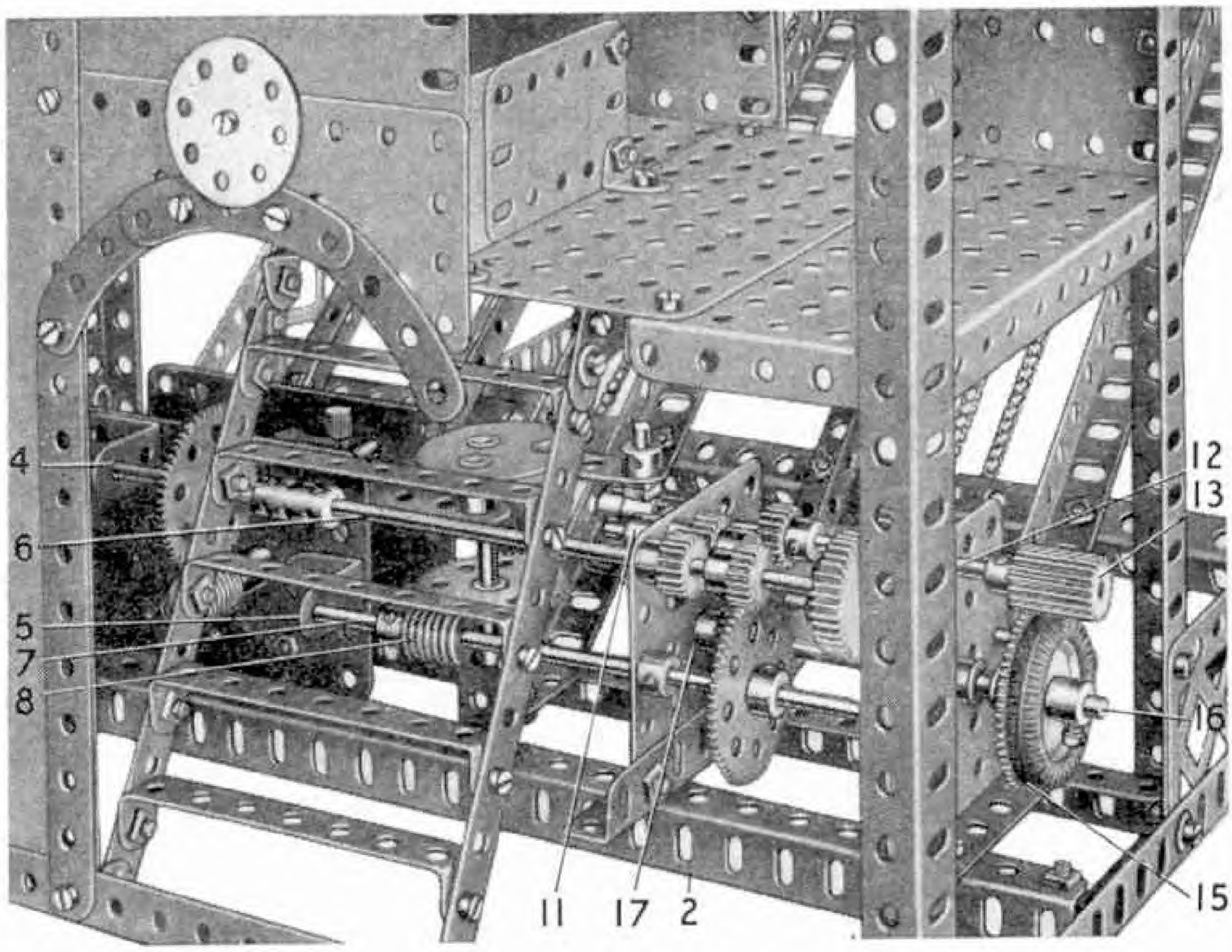


Fig. 3. The reversing mechanism seen from the front.

for bringing them back again! Somewhat similar types of cliff railways to that represented in our model are to be seen in service at Bournemouth and at Babbacombe Beach, Torquay.

The Meccano model consists of two passenger cars, each of which runs on a separate set of inclined rails leading from the lower platform to the upper platform. Each car is attached to a hauling cable, and one ascends while the other is making the downward trip. The cars are automatically reversed when they arrive at the platforms, an operation that is carried out by means of an ingeniously designed automatic reversing mechanism. This mechanism will provide plenty of interest for the model-builder. The motive power is provided by an E20R(S) Electric Motor.

Full constructional details of the Funicular Railway, together with a list of the parts required to build it, can be obtained by Home readers by writing to the Editor, enclosing a 2d. stamp for postage. Overseas readers in Canada, Australia, New Zealand, South Africa, Ceylon, Italy, Rhodesia and the United States of America should write to the main agents in those countries for their copies of the *current* "Model of the Month" instructions, enclosing suitable stamps for postage.

We advise readers to apply as soon as possible.

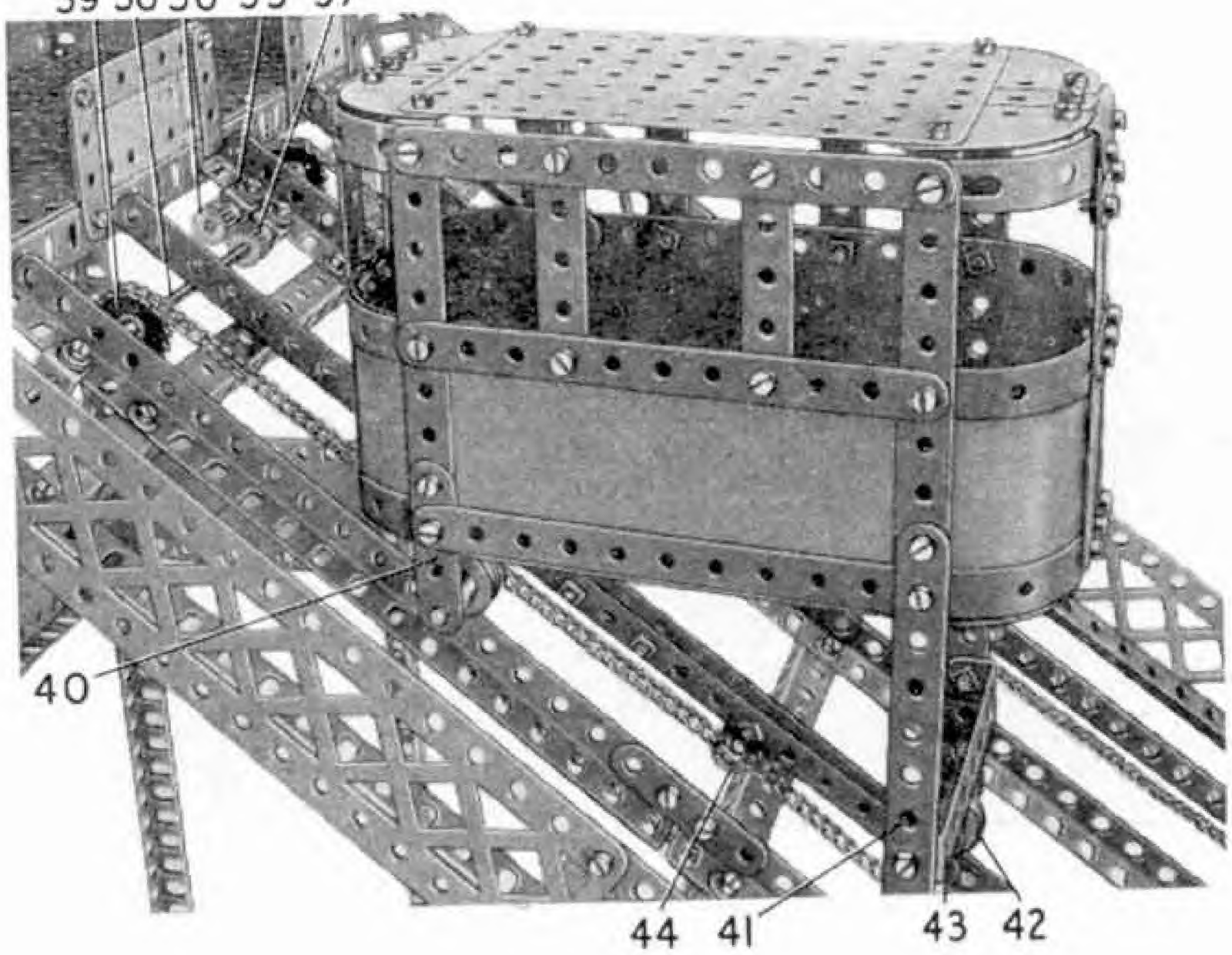


Fig. 4. One of the two passenger cars, showing method of attachment to the hauling chain.

Club and Branch News

WITH THE SECRETARY

Getting Ready for the Summer Sessions

With the second of the Winter Sessions now in its final month, it is time for Club Committees to be thinking about the April to September programme, with its emphasis on outdoor activities. Useful guidance as to what the members would prefer should be obtained by calling a general meeting early this month for the discussion of plans for the Summer Sessions This will enable the Committee to draw up a programme that will be certain to appeal to the majority, if not all, of the members, and to do so in time for a prompt start next month.

CLUB NOTES

ST. THOMAS (EXETER) M.C.—Meetings continue to be very well attended. The latter part of the last Session was devoted mainly to indoor games such as table-tennis, table football and billiards, in connection with various tournaments that were running. Mr. Hodder, the Leader, occupied members not actually engaged in the games by telling them interesting stories, and this feature became very popular, appealing also to the girl members. It has been decided that the age limit for new members shall be 12 years. *Secretary:* P. Banfield, 42 Beaufort Road, St. Thomas, Exeter, Devon.

AUSTRALIA

MAYLANDS M.C.—Membership has now reached the 50 mark. In the final model-building Session of 1957, many members did their best to complete their qualifications for the model-building certificates they hope to receive at the Annual Presentation Night. The variety of models built included some excellent original work. An interesting colour film on the North West Whaling Industry was shown at one meeting by a gentleman employed there during the last season. He gave a running commentary while the film was being screened. Over 40 members attended the annual Barbecue and Bonfire Night on 2nd November. The Session ended with a jolly party attended by 46 members, when the boys made a presentation to Mr. V. Malmgreen, the Leader, as a mark of their appreciation of his efforts during the year. *Leader:* Mr. V. Malmgreen, 16 Kennedy Street, Maylands, Western Australia.

BRANCH NEWS

AVIARY (LEEDS).—Meetings have been devoted more or less alternately to train running and layout extension work. A start has been made toward acquiring enough track to complete a circuit of the room. When fully developed this "all-round" layout will have double track throughout. A Quiz evening, by way of a change, was greatly enjoyed, the boys being asked questions and points awarded for correct answers. At the end of the quiz the individual totals were calculated and the scores announced. *Under-Secretary:* I. M. Pountney, Aviary Model Railway Club, 1 Arley Grove, Armley, Leeds 12, Yorkshire.

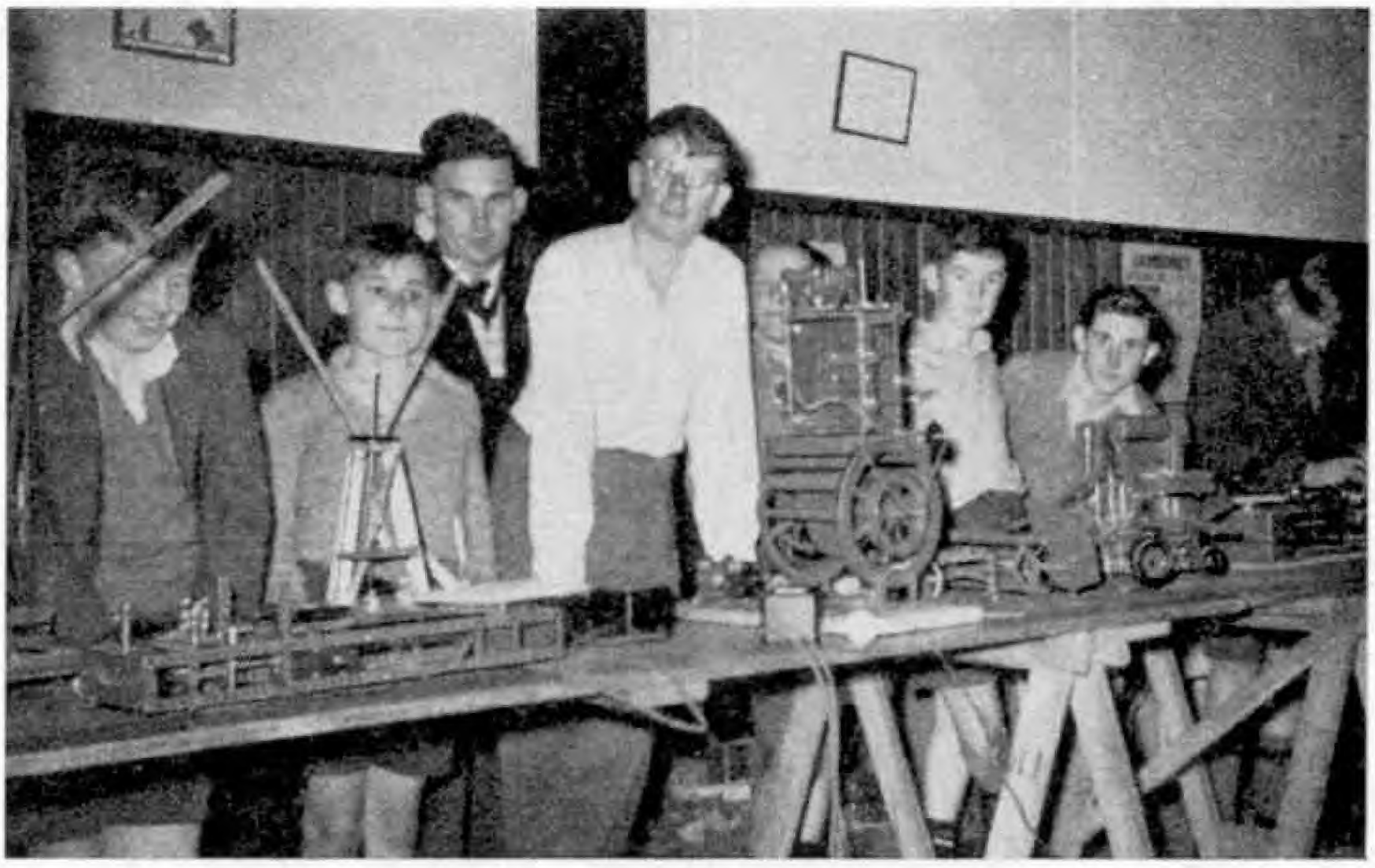
HALE END.—Visits have been paid to Camden, Kentish Town, Willesden and Cricklewood motive power depots, and a great deal of interest was observed on each occasion. At Camden members were able to see all types of engines, as large express passenger types are housed there. Smaller engines, including Compounds, were observed at Kentish Town. At indoor meetings, members have been busy improving and extending the layout, among the projects carried out being the making of a cutting and a tunnel. *Secretary:* A. L. Coe, 463 Hale End Road, Highams Park, London E.4.

BRANCH NOT YET INCORPORATED

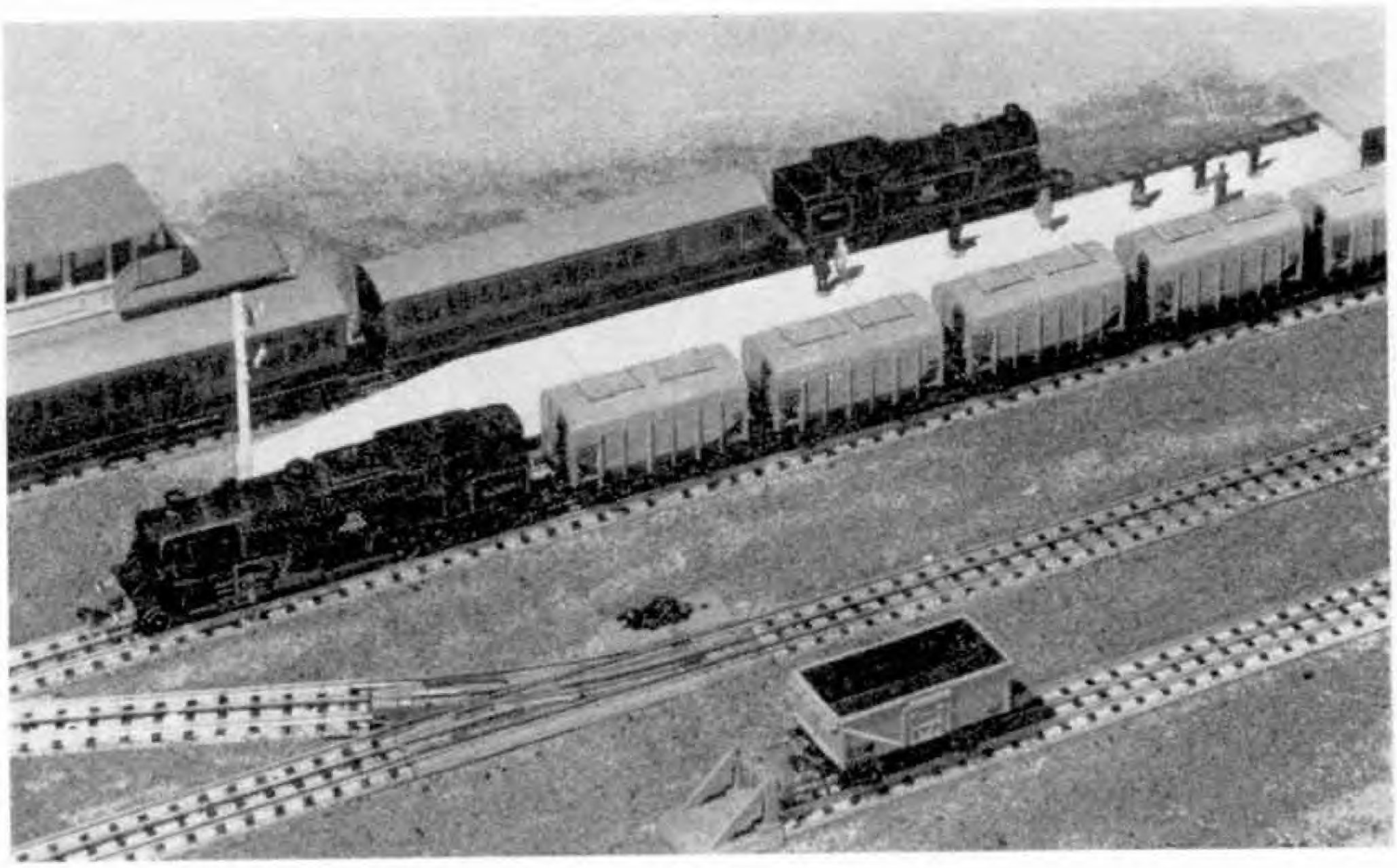
POTTERS BAR.—The Branch has been favoured with a second visit from the Chief Locomotive Superintendent, King's Cross. Extensions to the Branch layout are in hand. A high-level terminus is now under construction and is being laid on a baseboard 6 ft. by 2 ft. *Secretary:* R. Woods, 120 The Walk, Potters Bar, Middlesex.

AUSTRALIA

ST. KEVIN'S COLLEGE (TOORAK, VICTORIA).—Rail excursions to places of interest figure largely in the extensive programme of this Branch. Track meetings also are held. The Branch is associated with the "Puffing Billy" Preservation Society's Track Maintenance Branch, and its members voluntarily help in the repair and maintenance of that historic narrow gauge line. *Secretary:* P. Hunt, 12 Grange Road, Kew, Victoria, Australia.



Some of the members of the Christchurch (New Zealand) M.C. making last-minute adjustments to their models before judging takes place in a Competition for home-built models. Peter Saunders, the Club Treasurer, is third from the left.



A Magnificent Newcomer

PROBABLY all Hornby-Dublo owners who are "*M.M.*" readers saw the brief reference in the advertisement pages last month to the Hornby-Dublo SD6 20-ton Bulk Grain Wagon. Apart from being the first of a series of virtually super detailed models of moulded body construction of the highest quality, the Grain Wagon represents an entirely new type for Hornby-Dublo. The type has been developed in real practice for the transport of grain in bulk, this being in accordance with up-to-date methods of handling at each end of the journey. Real grain wagons are filled through the roof hatches in just a few minutes, while discharge is carried out as rapidly and easily through the bottom of the hopper-shaped vehicle.

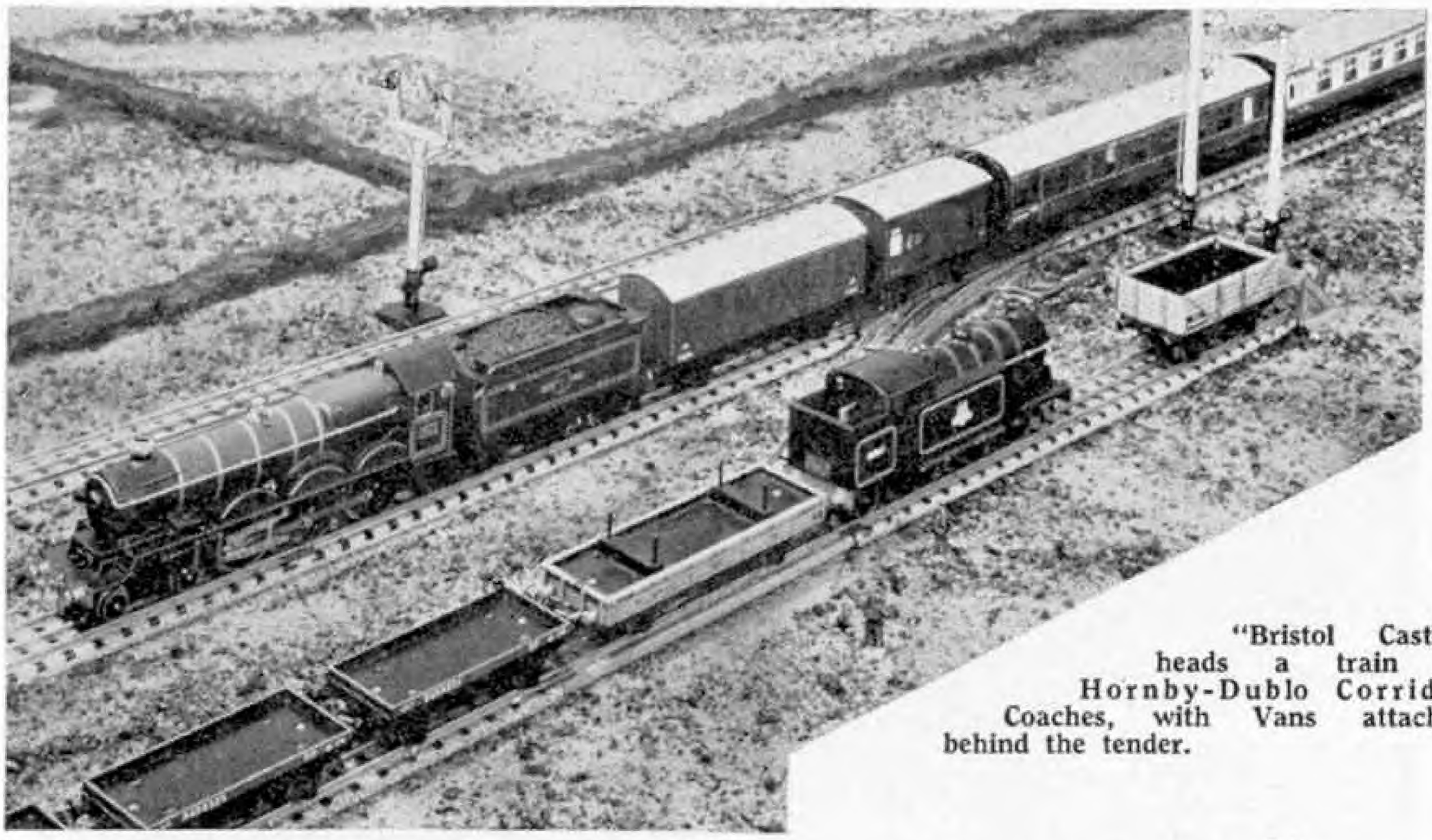
In the picture above a train of Hornby-Dublo 20-ton Bulk Grain Wagons has a clear road through the station. The remarkable amount of detail provided on these new vehicles will be apparent.

Naturally the roof hatches are modelled very carefully in the Hornby-Dublo Grain Wagon, as the onlooker invariably sees miniature trains much more from above than he does the real ones. The roof hatches in the model are dummies only but they faithfully reproduce the corresponding fittings and their slides on the real thing. Access to the roof is given by means of end ladders and these are neatly modelled and securely fixed on the Hornby-Dublo Grain Wagon.

Standard grain wagons of the hopper type are of steel construction, which means that the sides are plentifully provided with stiffening angles. As the picture above shows, these are a prominent feature of the Hornby-Dublo Grain Wagon and in fact these angles are of accurate scale section, a feature made possible by the moulded construction. The body and roof mouldings are extremely strong and have a splendid finish. B.R. grey distinguishes the bodywork, the base and under gear being black. The lettering and numbering details are very neat and clear.

The wagon base is of the usual Hornby-Dublo die-cast construction, but is newly designed and represents modern practice. Beautifully moulded machined wheels are provided, having actual spokes. The wheel and axle assembly adopted is very strong and gives smooth and very quiet running. On each side of each wheel is a dummy brake block and hanger.

Altogether, this new Wagon gives a splendid start to the new series of moulded rolling stock.



"Bristol Castle" heads a train of Hornby-Dublo Corridor Coaches, with Vans attached behind the tender.

HORNBY RAILWAY COMPANY

By the Secretary

Motor Talk and Marshalling

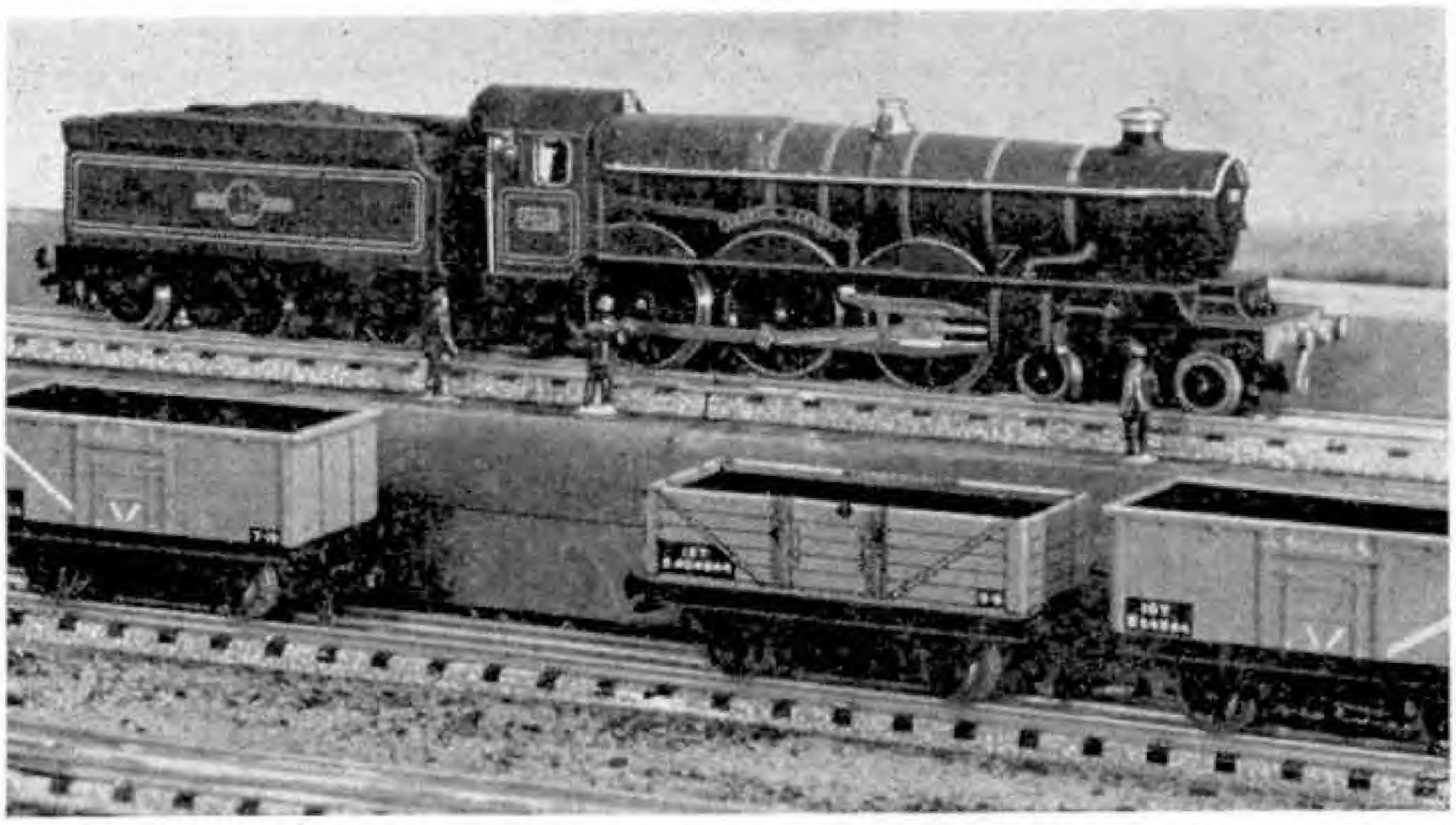
ONE or two points that have cropped up several times in recent letters from Hornby-Dublo railwaymen suggest that we might devote some of our talk this month to oiling and maintenance matters, particularly oiling. Possibly more experienced owners will feel that oiling and so on is a subject that can be overdone. But I must keep in mind the new owners who are constantly joining the Hornby-Dublo ranks, and it is for their benefit more particularly that I am referring to these matters now.

I have already stressed the importance of correct oiling in dealing with the new *Bristol Castle* Locomotive. The motor characteristics of this engine, which give it the realistic performance that is admired by so many miniature railwaymen, mean that the golden rule in lubrication, little and often, should be consistently observed. The armature shaft bearings particularly and the worm drive should be lubricated *regularly*, and the axle bearings too must not be neglected, either on the engine and tender or on the rolling stock of its train.

As the upper picture on the opposite page may suggest, outside details that require a spot of oil include the crank pins, the piston rods where they enter the cylinders, and the working surfaces of the slide bars. Look after these details as carefully as a Western engineman deals with his real Castle, and you will get the smooth sweet running that the miniature engine is designed to provide.

It is not always easy to get at these outside items, as the engine may not be standing in a convenient position on the track. In the picture mentioned *Bristol Castle* is standing on a slightly elevated track where normally Coal Wagons are found. Apart from making a nice picture, such a raised position, if it can be arranged, would enable the owner to apply the necessary touches easily to the outside details.

The motors of other Hornby-Dublo Locomotives are laid out in a different manner from that of *Bristol Castle* and an important oiling point with them, except on the 2-6-4T, is the top bearing of the armature shaft. There is a tendency, I find, for Hornby-Dublo drivers to forget this bearing and if it is allowed to run dry uncertain performances result. Make quite sure, then, that the top bearing of the 0-6-2T and the 4-6-2 tender engines is properly oiled, and make sure also that the oil does reach the shaft.

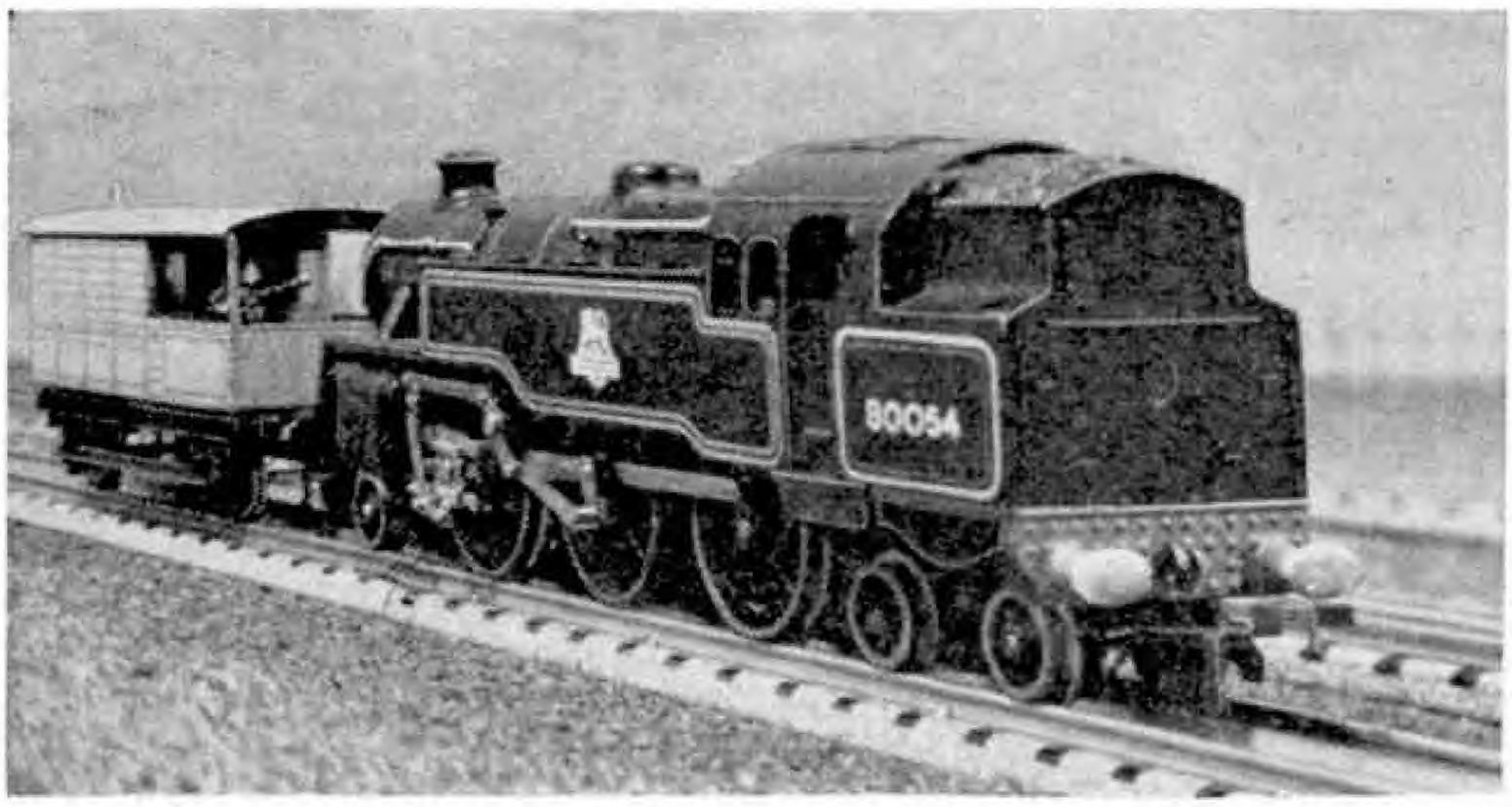


The Castle receives attention from the staff at her motive power depot.

The 2-6-4T does not require attention to its top bearing as this is of a special self-oiling type, but the other oiling points of course do require the normal treatment.

A surprise question recently from a youthful owner of a Hornby-Dublo 2-6-4T referred to the hole in the rear of the bunker of this engine. Our young friend wanted to know what this was for and I fear that he had not read the instructions packed with his engine. The answer is, as most of you will recall, that the 2-6-4T is fitted with a magnetic shunt device that can be adjusted to improve low speed running. The hole provides access to the adjusting screw and makes it unnecessary to remove the motor from the housing for this attention.

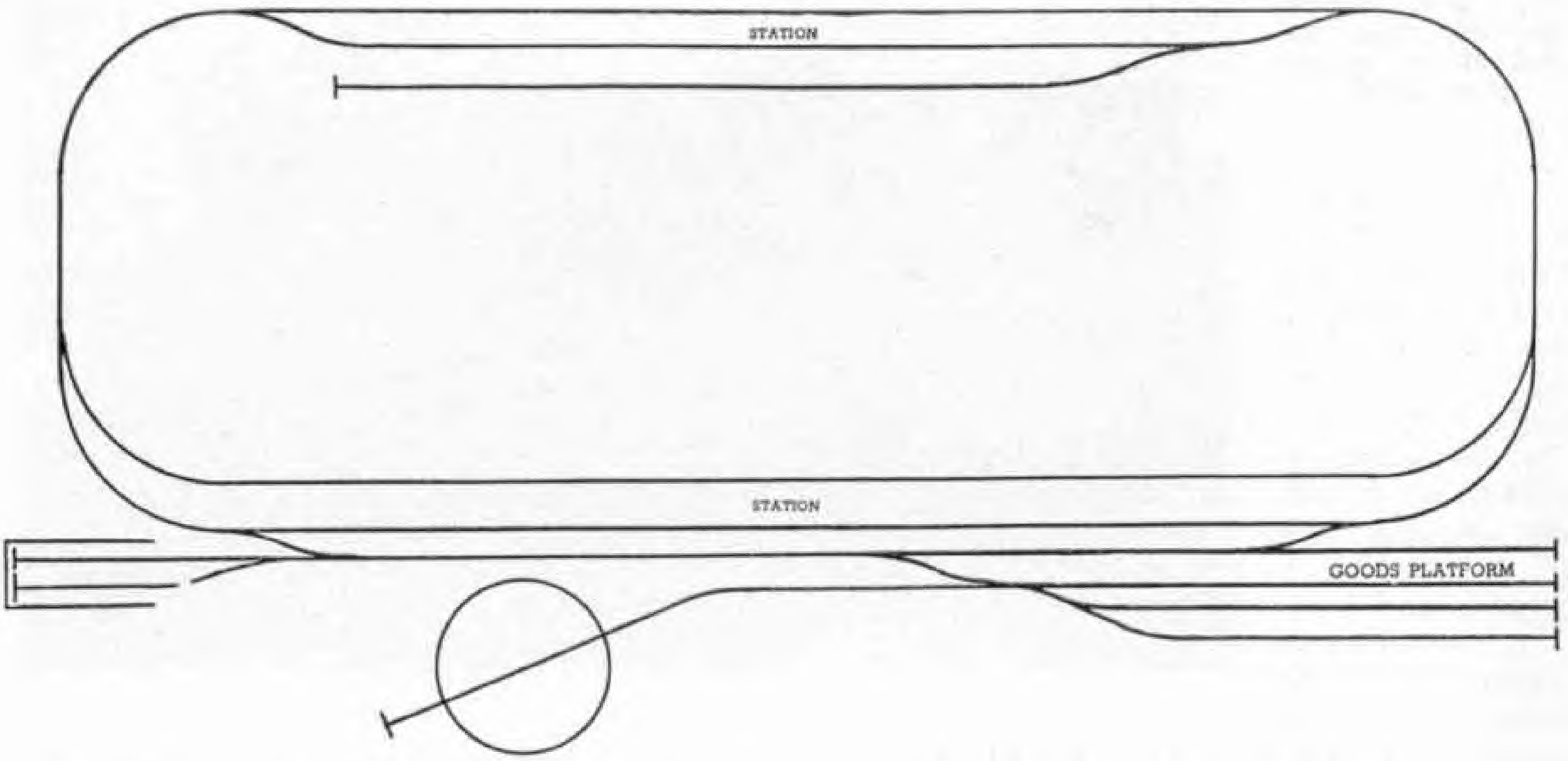
The normal setting of the screw is usually satisfactory for general running, but if the engine is too lively the screw should be turned anti-clockwise until the desired result is obtained. If the handle of the Controller has to be turned too far before the engine will start, then the screw must be turned clockwise to put matters right. The lower illustration on this page has been included specially to show the hole through which your screwdriver should be passed.



The Hornby-Dublo 2-6-4T is pushing a Goods Brake Van in the course of shunting operations.

The attachment of suitable vans to passenger trains has often been mentioned in the Hornby-Dublo pages in the *M.M.* and this sort of thing is shown in the illustration opposite. An *M.M.* reader and railway enthusiast of many years' standing, Mr. R. P. Walford, of Bovey Tracey, remarks that the rules regarding the marshalling of such vehicles in passenger trains would be of interest to Hornby-Dublo owners. He points out that four-wheelers should be mingled only with bogie vans and empty coaches, and must be in front of passenger coaches or behind them. This does not apply to military, naval, air-force and theatrical specials, which may have any formation but may not run at express speeds.

Four-wheeled coaching type stock, such as the Hornby-Dublo Horse Box, is not otherwise restricted, but fitted freight stock of *XP* character, such as the Ventilated Van in our picture, must not be placed between the engine and the coaching stock during the months October to April, but should then be run at the rear of a passenger train. This period is the steam-heating season. So the train in our illustration is one for running in the summer season only.



A Hornby Exhibition Layout

THE diagram above has been prepared from a sketch forwarded by *M.M.* reader Geoffrey Murray, of Otago, New Zealand. Geoffrey is a member of the H.R.C. and quite rightly thinks that the diagram will be of interest to others. The layout was put together by him and two friends for exhibition purposes. It was accommodated in a garage, where the system was operated quite successfully over two weekends.

Owing to its situation, and the fact that the railway was dismantled when the show was over, no photographs are available, but the plan above shows the system clearly and is a fine example of what can be done fairly easily when several owners combine their equipment to make one good big railway.

As is always desirable for exhibition purposes, where traffic should be kept moving, the main line is continuous. Basically the system shown is a single line one, but there are long passing loops formed at the stations situated on opposite sides of the main oval-shaped track. One of the passing loops thus formed, that serving the station in the upper half of the diagram, has a Buffer Stop or dead-end siding branching from it. This siding is of fair length and must have been found useful during the running periods for holding a complete train not immediately required for main line operation.

The loop line in the lower half of the diagram is in a sense duplicated by the long reception road parallel to it. This is extended at both ends, in one instance to serve an engine shed and at the other end to form a platform road serving a goods depot. The latter in fact is served by an additional track as well and as the diagram shows there are two ordinary goods sidings. The layout of these goods premises, at the right hand end of the diagram, and the length of reception track available, make for good shunting operations well clear of the running tracks.

A further feature of the system is the Hornby No. 2 Turntable on a short branch of its own. Although situated a little way from the engine shed, the placing of the Turntable ensures that it can be reached fairly easily from the lower station or from the goods yard. Curves of 2 ft. radius are employed, so that a wide selection of Hornby locomotives and rolling stock could be used.

On the track provided trains were able to give a good account of themselves because there was plenty of space available for the layout. This made it possible to have the equivalent of nine Straight Rails and one Straight Half Rail between the 2 ft. radius curves leading to the shorter sections at each end. On the ends themselves four Straight Rails separated the curved sections. Thus the layout occupied a space of approximately 15 ft. by 8 ft. It is one that could very well be applied for exhibition purposes by an H.R.C. Branch, or any other organisation using Hornby Gauge 0 Trains.

A New Part-Exchange Scheme

Allowances for Post-War Hornby Locomotives

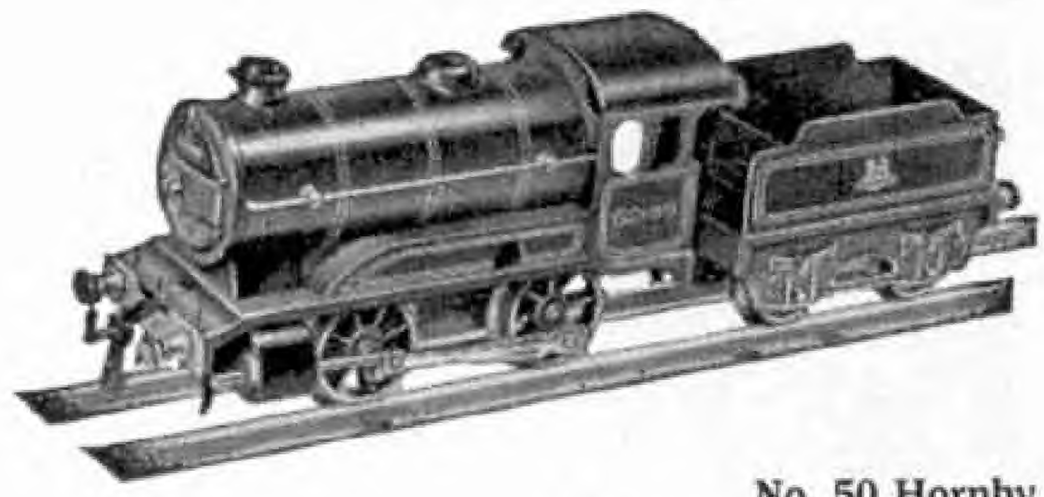
A HORNBY-DUBLO electric railway is something for which every boy longs, whether he is new to the hobby or already has a Gauge 0 Hornby Clockwork line. And this is not surprising when we think of the wonderfully attractive Hornby-Dublo locomotives, two of which are shown on this page, and the delights of the easy remote control the Hornby-Dublo System provides, to mention only two of its many outstanding features.



No. 20 Hornby Locomotive and Tender.

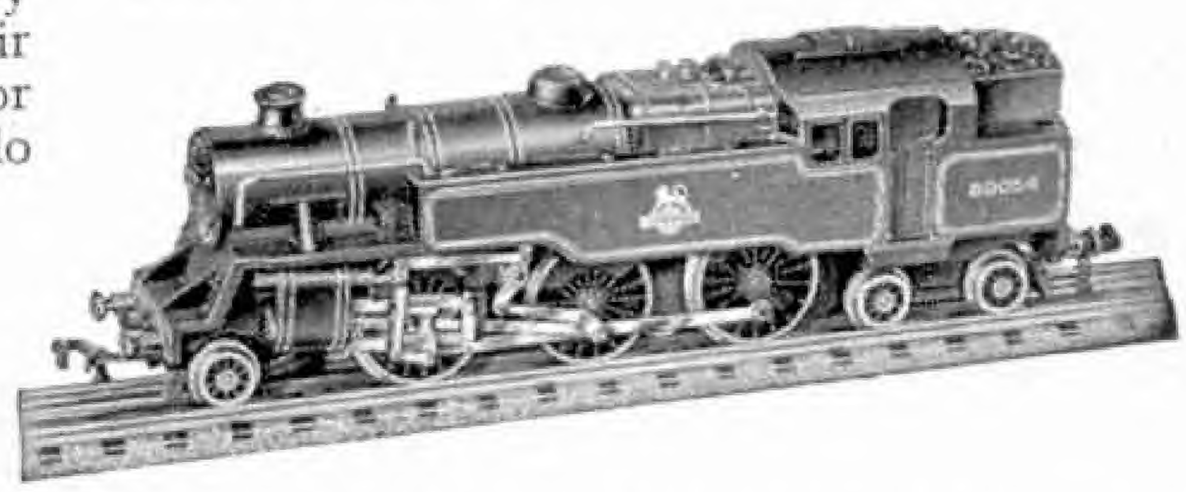
For those who wish to make such a change a special part-exchange scheme is now available. In accordance with this, their post-war type old Gauge 0 Hornby locomotives can be handed in to their dealers, and allowances will be made for them on the purchase of a Hornby-Dublo Locomotive or Train Set.

Just how this scheme works can be seen from the details on the Hornby Locomotive Part-Exchange coupon, which is at the foot of the first column on page xxiv. To obtain the allowance for your own old locomotive as part payment towards the cost of the Hornby-Dublo Locomotive or Train Set you want, all that you have to do is to fill in the details on the coupon, and hand this to your dealer. Filling in the details simply means indicating by a cross which Hornby Locomotive you are offering in part-exchange and stating which Hornby-Dublo Locomotive or Train Set you wish to purchase. Add your signature and address before giving the coupon to your dealer.



No. 50 Hornby Locomotive and Tender.

If for any reason you are unable to make this exchange through a dealer, all that is necessary is to fill in the coupon, as before, and then to send it direct to the Service Department, Meccano Ltd., Binns Road, Liverpool 13, along with your old Hornby Locomotive and a Postal Order or payment in some other form for the balance of the price of the new

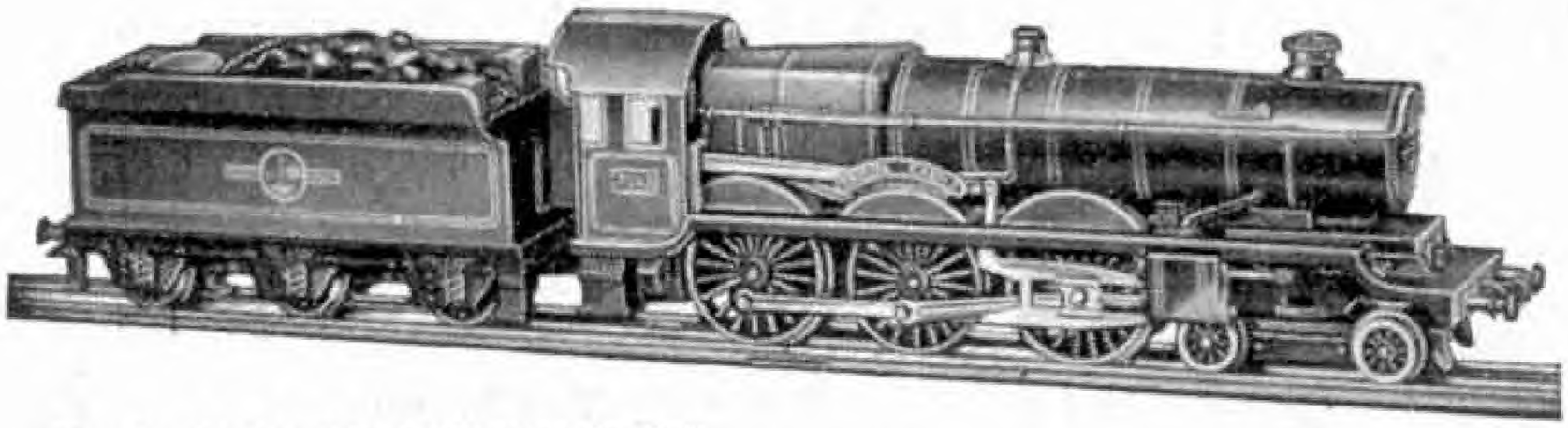


Hornby-Dublo L18 2-6-4 Tank Locomotive.

Hornby-Dublo Locomotive or Train Set you want.

Now here is a fine plan that will enable every enthusiast to make a good start with a Hornby-Dublo railway. It does not matter whether the Locomotive that you wish to exchange is in working order or not. But only one old Hornby Gauge 0 Locomotive can be accepted in part-exchange payment.

The scheme applies only in the United Kingdom.



Hornby-Dublo LT20 "Bristol Castle".

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Stamp Collectors' Corner

By F. E. Metcalfe



THE OLDEST COLONY

Not so very long ago a speaker in a B.B.C. programme referred to England's oldest colony and Canada's newest province—Newfoundland. That talk made me look out a little collection of its stamps, which had been put away when this former Colony elected to join up with Canada, and in consequence ceased to issue its own stamps. Apart from that, one or two readers have raised questions about the stamps Newfoundland uses today, and I can remember at least two who have received mail from Canada franked with both Canadian *and* Newfoundland stamps. These probably came from stamp collectors, but they puzzled the recipient very much.



Quite contrary to what usually happens to the stamps of a country that ceases issues, those of Newfoundland have retained most of their popularity. This is no doubt due to the fact that collectors who go in for Canadian issues—and no stamps are more popular—now go in for those of Newfoundland as well. As for the letters franked with Canadian and Newfoundland stamps, both are valid for postage in either country. It is mostly stamp collectors who make up fancy combinations of them, but it is only natural that if anyone happens to have any odd stamps they will use them up.

Newfoundland's stamps are certainly worth considering, but it is out of the question to go into full details of all the issues, for they date back to 1857 and few countries in the British Empire have issued more of them. Another point is that many of Newfoundland's stamps are exceedingly scarce, and in consequence very expensive, but let no one be put out too much by that fact. There are plenty of cheap stamps to go after if one wishes to get together a collection of the country.



To begin at the beginning, Newfoundland's first set appeared on 1st January, 1857. This consisted of a handsome line-engraved issue, printed by a firm responsible for many of the earlier British classics. The set contained one of the first triangular stamps, and here I would like to utter a word of warning. This first set shows some very big prices, but condition is very important. A lot of these stamps were imperforate and had to be cut. In many cases, alas, the designs were cut into, and this accounts for the large variations in catalogue prices, which range from £20 or £30 to £200. Stamps which have been cut into are not worth the lower figure, while perfect copies would bring not far short of full catalogue price.

The same designs appeared in the second issue, but the colours were changed. Then Newfoundland changed its printers as well, in 1866, when the American Bank Note Company prepared the third set. Stamps very similar in design appeared until 1890. The Prince Consort appeared on one stamp, Queen Victoria on others; there was a portrait of King Edward VII as a boy, not to overlook seals and fishes; and, the design I like best, a fine picture appeared of an Atlantic brigantine in full sail. And again a word of warning. Poor copies must be avoided at all cost, for poor copies are unsaleable while fine specimens sell at good prices. Pity there are so many of the former about.

In 1890 a three cent stamp appeared, which came out in many shades, six of which are catalogued. In 1897 a handsome commemorative set was issued to mark the 400th anniversary of the discovery of Newfoundland by Jean Cabot. I don't suppose for a moment that Cabot was the first, but he gets the credit. Then, after a number of provisional stamps, we got a rather dull set depicting the royal family of the day; more pictorials; more portraits; a very interesting set in 1919, with a design showing the head of a caribou; and then the high lights—overprinted stamps to frank the letters carried by Harry Hawker on his attempted flight across the Atlantic. It is nice to contemplate such stamps as the last mentioned, but alas they are outside our sphere, for a copy brings two or three hundred pounds.



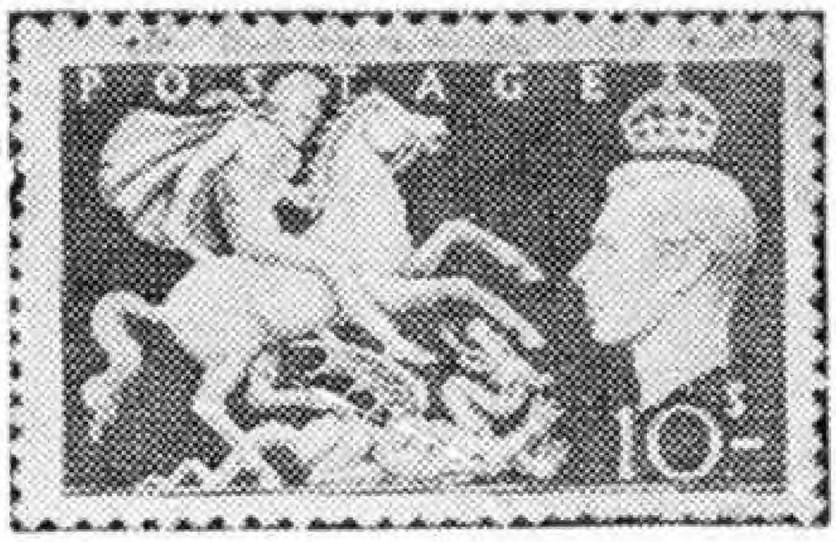
And now we come to the 1923 set. These are small stamps, with nice pictorial designs, and can be obtained at quite a bit off catalogue prices. And many of the stamps that follow, in the various sets, are not only attractive but within the reach of our pockets.

A rather interesting point is that Newfoundland had two Coronation Sets in 1937. One was a set of three, like those of the colonies, and the other one of eleven values, of which there are actually three perforations. All three of these are listed in the Commonwealth Catalogue, and some are scarce and worth looking out for. The stamps are somewhat crudely printed, yet they are not lacking in interest.

There were several more commemorative stamps, the most interesting of which was the 5c. value issued in 1947 to mark the 450th anniversary of Cabot's discovery of Newfoundland. It will be remembered that there was a long set issued previously for the 400th anniversary. Then, alas, a couple of years later, Newfoundland joined Canada and almost a century of stamp issuing came to an end.

Well, that is a brief outline of Newfoundland's stamp issues. Though we are dealing with a country philatelically dead, its stamps still maintain much of their popularity, and there is no reason why one need not take them up from an investment point of view.

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For other Stamp Advertisements see also pages 154 and xxii

Stamp Gossip

FLYING FOXES

Many dealers are very indignant with the Seychelles Post Office, for to tide over a period while a 5c. stamp was printed they surcharged a stock of an obsolete stamp and only filled overseas dealers' orders if they were for 2,000 copies or over.



But that is really besides the point, for it is the new 5c. stamp that I want to mention. It is rather dull in appearance, but is in demand by thematic collectors, for it depicts a fruit bat, which in the Seychelles they apparently call a flying fox. Fortunately it is of low face value, so a copy will only cost a couple of coppers.

One more word, however, about the overprinted stamp that was put on sale pending the arrival of the "Flying Fox" stamp. Only 179,000 were sold, and there are three interesting type variations on the overprint. These have been catalogued in both the "Commonwealth" and the "Two Reigns" catalogues, but too late to appear in current editions. In these the letters c.e. are to be found in italics, and s in a smaller size. As a lot of stamps were distributed before these variations were noted, you should look at your copy—many will have one—to see which it is. Blocks of four with the varieties are selling at up to £5, so you may be lucky!

CHILD WELFARE

I do hope that our Editor won't mind if I ask him to illustrate another Indian stamp. It is one of a set of three issued on India's National Children's Day, 14th November last. There was a time when in design India's stamps were as dull as ditch water, although they were much sought after by philatelists. Now, however, India is turning out some really attractive issues, and this Child Welfare set will enhance the good opinion of them now being formed. It is to be hoped, however, that they will not overdo these issues, for collectors will lose interest if there are too many.



The new set shows different aspects of child welfare, on the three values, 8np, nutritional, 15np, educational and 90np, recreational. Mr. Kooka kindly supplied examples of the set, as well as a first day cover, with an attractive postmark.

Yes, India is coming on very well with nice stamps, and there are more fine new issues to follow this set, which I hope to illustrate in later issues of the Magazine.



MORE ATTRACTIONS

Still on the question of attractive stamps, there is one country that could not bring out an inartistic stamp if it tried. The country? Japan, of course.

I was recently shown a collection got together by a young lady who was still on the right side of 14—not a difficult accomplishment, or is it the wrong side, when one is only 13? She had practised hand printing—as I have remarked more than once—and only included in her gathering Japanese stamps issued during the past ten years, so she had not spent much money. The stamp she liked best was one similar to that illustrated, showing a Japanese girl skater, and a nice stamp it is, too.

LIBERIA

The Liberian Post Office is taking care to see that its stamps have the right appeal. They are attractive, to say the least of it. Yet, the issues have been overdone and while in the U.S.A. they have a fairly good following, here in Britain the average collector rather fights shy of them, for the reason I have given. Yet it is rather a pity, so fine are some of the designs. Take the stamp illustrated, for instance. It is one of



a set issued to commemorate the first direct "Clipper" flight between Liberia and New York. The Americans have big business interests in the Black Republic, making such a service necessary, and of course it is those interests that have something to do with what American popularity there may be for Liberian stamps.

POSTMARK SLOGANS

Recently a very attractive slogan postmark from Denmark was illustrated. While I liked the design very much, as did apparently some of my readers, it was left to Mr. A .R. W. Perry, of Lewes, that delightful county town of Sussex, to give a translation of the postmark. What it apparently said was *Never put cash in an ordinary letter.* And a good tip too.

TIP OF THE MONTH

And now we come to our own tip. This time it has to do with the set issued by North Borneo in November 1956 to commemorate the 75th Anniversary of the founding of the Old Chartered Company. There are four values in the set, and recently it was disclosed that only 99,042 copies of the top value, $1, were sold before the set went obsolete in May 1957. The sales of the other values were 10c., 683,537, 15c., 291,008 and 35c., 126,407. The important point is that there can only be as many complete sets, which is how you must buy it, as there are of the top value. So pick up a set, either used or mint, if you can. You should do this at about 6/–.

Enchantment for Three Shillings—

(*Continued from page 118*)

that is the next goal, and once the existing track has been put into good fettle it is the intention of the Company and the Society to extend the passenger carrying section of the Railway to it. This will provide the first new line of public narrow gauge railway to be constructed for nearly four decades.

It will not be long now before the Tal-y-Llyn Railway reaches its centenary, but before then the Society aims not only to have completed its extension and relaying, but also to have sufficient rolling stock to carry the additional passengers in improved comfort. That is one of the many tasks ahead and it is being done in keeping with the Victorian atmosphere of the old Railway, for the Company has been fortunate in having had presented to it two ex-Glyn Valley Tramway coach bodies that are being renovated and restored. It is hoped that further ex-narrow gauge coach bodies can be obtained and dealt with in a similar way. The two original locomotives are away for repairs and due to the generosity of certain members it is hoped that old No. 1, *Talyllyn*, will be back in service for the 1958 season.

To sum up, we may use the words of an author writing in an issue of *Coming Events*—the magazine of the British Tourist and Holiday Association. "And you can buy the enchantment of this journey for three shillings—and a unique experience into the bargain." The Tal-y-Llyn has earned a reputation as the railway that makes friends, offering the tourist and the enthusiast a chance to help to preserve another of the worth-while relics of yesterday for the pleasure of the future.

Road and Track—(*Continued from page 125*)

which ran in the fully modified class in the Monte Carlo Rally.

It had racing brake linings, a compression ratio of 8.5, the highest suitable for French pump fuel, oil coolers, twin carburetters, a polished cylinder head with stronger valve springs, a special exhaust manifold of Abingdon design and an improved clutch. The Minor has a top speed of 90 m.p.h., with 75 m.p.h. in third.

Marcus Chambers and Douglas Watts are emphatic that rallying improves the breed. "We learn a great deal about suspension, steering, brakes, and driver comfort on rallies", points out Chambers, "and about the sturdiness of power units as well."

"It is all very much worthwhile. The Production car of tomorrow is the modified car of today."

The World Championship

The achievement of Stirling Moss and Alf Francis in snatching victory in the Argentine G.P. from under the nose of the man who has won it four years running, Juan Fangio, has turned the spotlight on the challenge of the small cars in 1958.

The 1,960 c.c. Cooper-Climax that Moss drove is not by any means fully developed yet, and when John Cooper enters the field as well with his new F.1 Cooper-Climax and Colin Chapman does likewise with his Lotus, then we are going to see some close, exciting motor racing. On circuits such as Goodwood (where they should all be racing on 7th April) and Monaco in May, the Vanwalls and B.R.M.'s will have to look out.

Mechanisation in the Post Office—

(*Continued from page 127*)

of parcels about certain offices. On the conveyors the bags are carried neck downward, so that they can be emptied when they reach the right point merely by cutting the string round the neck.

Another interesting and ingenious piece of mechanism, seen in the lower illustration on page 127, is one designed to separate letters and packets. In this the mails are tipped into a loading hopper and carried on a conveyor band to what is called the segregator drum, the loading end of which is seen in the picture. During their passage through the drum thin letters slip through hinged flaps on to a conveyor below. Newspapers, packets and bulky letters cannot pass through these openings, so they come out at the end of the drum ready for hand stamping.

The thin letters are taken by the conveyor running below the drum to tower shaped units, one at each side of the drum, which contain a series of spring rollers separated by 8 in. gaps. Short letters slip out through the gaps on to a collection device, but long letters bridge them and are carried to the top of the towers.

The streams of short and long letters go on to the points where they are faced right way up and postmarked. It is planned to add a device later on that will take letters from the separator towers and arrange them automatically, each right way up and with its stamp in the same corner. Then the letters can go through the stamping machine without having to be "faced", that is put right way up, by hand.

The Record-Breaking Britannia—

(*Continued from page 132*)

seems little doubt that the Britannia will be queen of the Atlantic skies at least until the big jets enter service next year.

Even then, the quietness of the "Whispering Giant", as the Britannia has been nicknamed in America, will continue to appeal to many people, as will its ability to operate from almost any existing airport in the world. By comparison, the big jet-liners will be able to fly only to airports with very long runways, and will be so expensive to buy and operate that American Airlines have already asked if they can increase their fares by 15 per cent.

By the beginning of this year 77 Britannias had been ordered, of which 23 had been delivered. B.O.A.C.'s 15 Britannia 102's were flying more than a million miles each month. Their first three 312's were in service, as were El Al's three 313's and Aeronaves' two 302's. Several more will have been delivered by the time you read this issue of the *M.M.*, including the first of six 314's for Canadian Pacific Airlines.

The twin assembly lines at Bristol's own factory and at Short and Harland's works in Belfast are busy, and should be even busier when the airlines of the world wake up to the fact that the Britannia can make money as well as records.

"ENGINEMEN ELITE"

By Norman McKillop

(Ian Allan, 21/- net)

Anything written by Norman McKillop, or Toram Beg, to use his pen name, is sure to be lively, and this term can certainly be applied to the somewhat miscellaneous contents of his latest book. In part this is the story of his passage from greaser on the North British Railway to top link driver on the East Coast main line. For the rest we have reminiscences of engines and famous N.B.R. and L.N.E.R. drivers of the last 40 odd years, all with a fine series of reproductions of railway photographs as illustrations.

The author has always been an engine lover, who wished to know how and why things happen on locomotives. So he writes understandingly of his work, and has many interesting stories to tell of his special favourites, including the Gresley Pacific *Spearmint* and the N.E.R. Z Atlantics—and of those he disliked, such as the N.B.R. Reid Atlantics, which apparently were not just to be driven, but had to be fought! With his experience he combines skill in writing that has helped to give us intimate pictures of fellow railwaymen met at all stages of his career, and altogether here is a very fine book, packed with practical railway knowledge, wisdom and humour.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

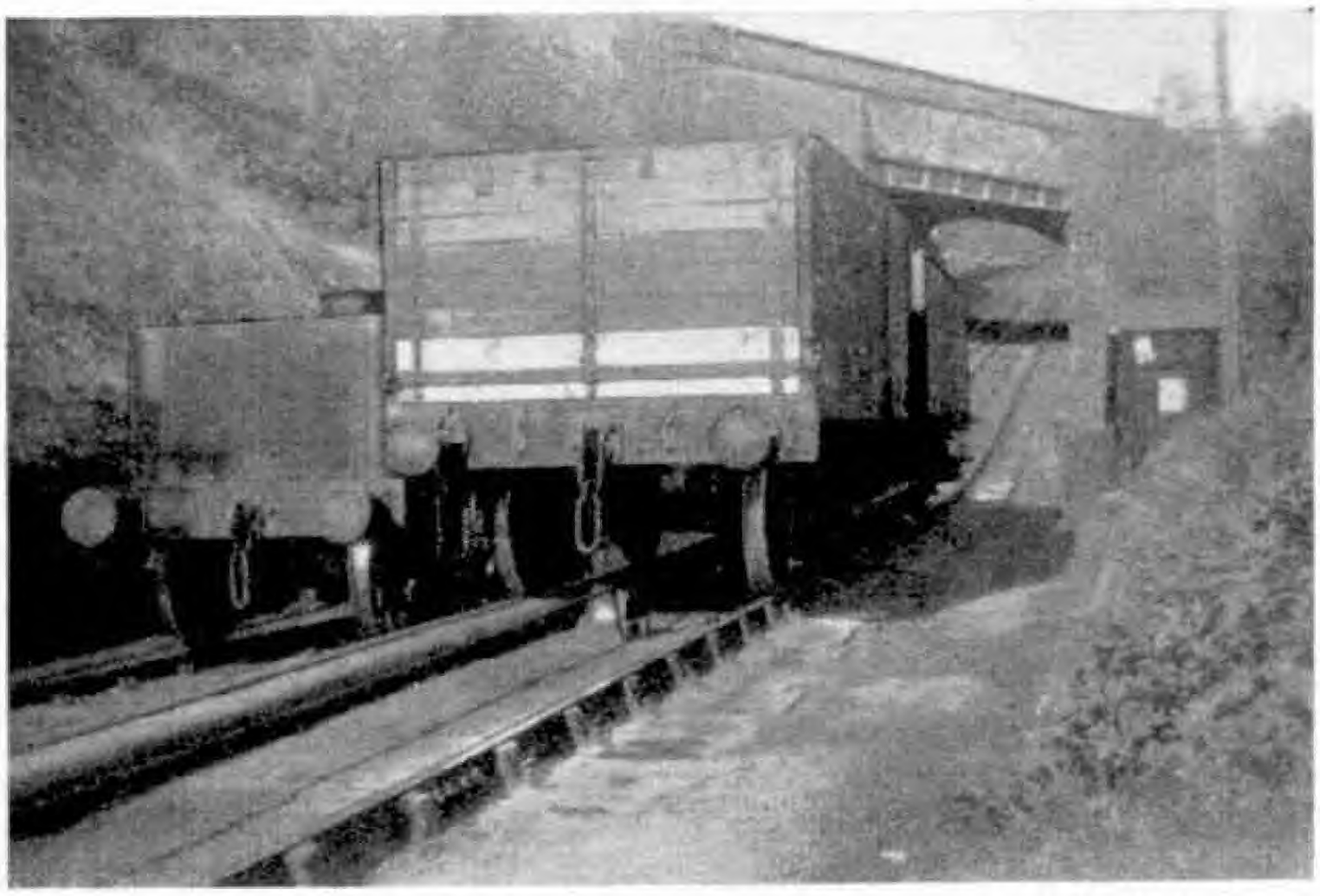
The High Peak Railway

While on holiday in the Peak District of Derbyshire, I paid a visit to the High Peak Railway. This interesting mineral railway, some fifteen miles long, was opened in 1832 and runs from Cromford near Matlock, on the Derby-Manchester line, to Parsley Hay on the Buxton-Ashbourne line.

The most remarkable features of the High Peak Railway are its three inclines, two of which have gradients of over 1 in 9 and are rope-worked. The third incline is worked by steam locomotives, despite a gradient of 1 in 14! The rope-worked inclines are powered by stationary steam engines, one of which, at Middleton, dates from the opening of the line and is still doing fine work despite its age.

There are several goods depots along the line, where general goods traffic is handled as well as limestone from the nearby quarries. Water forms an important traffic item on the High Peak line. British Railways supply water to the quarries, winding engines, goods depots, and many of the hamlets near the railway. The water is transported in converted locomotive tenders, some of which are over 100 years old.

J. F. Sharp (Berry Brow).



Sheep Pasture incline, on the High Peak Railway. Photograph by J. F. Sharp, Berry Brow.

The Royal Albert Bridge, Saltash

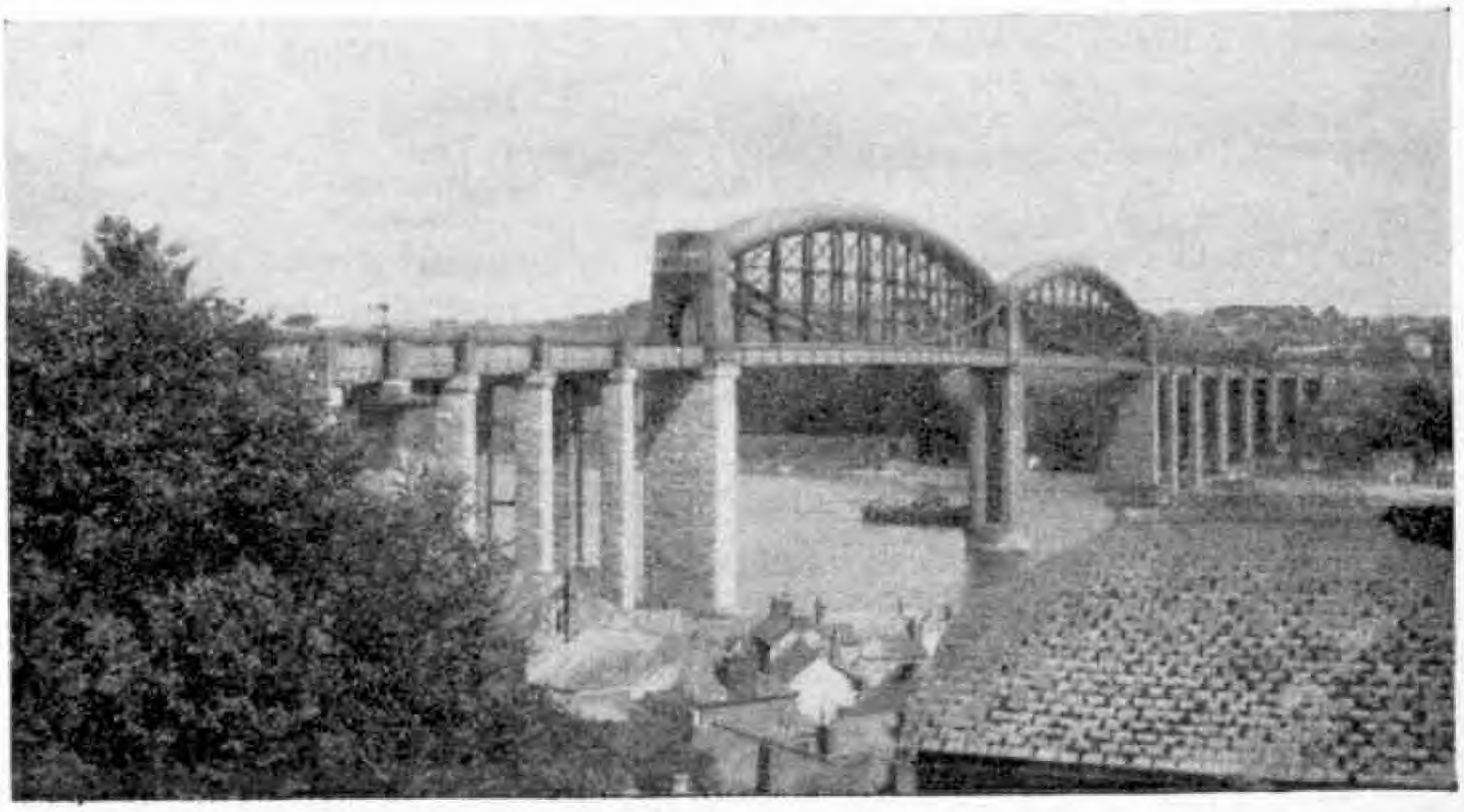
While spending a holiday at Paignton last summer I went to see the wonderful Western Region railway bridge at Saltash. I travelled from Paignton to Newton Abbot, and from there over the very interesting stretch of line to Plymouth (North Road), where I caught an auto-train to Saltash. En route, the train stopped at Devonport, Dockyard Halt, Keyham, and St. Budeaux.

While crossing the bridge I had plenty of time to observe the usual contingent of warships, at anchor in the broad river, as the maximum speed allowed, even for the *Cornish Riviera Express*, is 15 m.p.h. In raised letters, on each of the landspan archways, is the inscription—"I. K. Brunel, Engineer, 1859."

This bridge, opened by Prince Albert in May, 1859, was the last of his own designs which Brunel saw completed. Even this was only achieved by his being drawn slowly over the bridge on a couch placed on a trolley.

It is now proposed to build a modern road bridge alongside. I wonder if this will last like Brunel's marvellous bridge.

J. F. Keeping (Frome).



The Royal Albert Bridge, Saltash. Photograph by J. F. Keeping, Frome.



"I've forgotten how to spell it!"

Fireside Fun

Little Dorothy had just emerged from a long railway tunnel.

"Mummy," she said. "Is it tomorrow now?"

* * * *

"Why are you always fighting the boy next door?"
"He's the only boy in the street I can beat!"

* * * *

"Haven't I shaved you before, sir?" asked the barber of the tough-looking soldier.

"I don't think so," answered the soldier, "I got those scars in a commando raid."

* * * *

A great burly fellow walked up to a teller in a bank one quiet afternoon and muttered. "This is a hold-up! One scream and I'll fill you full of lead. Now hand over the dough!"

The little bank clerk gasped, but managed to pull himself together.

"C-could you k-kindly go to the n-next grill?" he whispered "I'm having my lunch hour."

* * * *

Johnson: "Shall we have a friendly game of cards?"
Poppleton: "No, let's play bridge."

* * * *

Dining Car Waiter: "Minced steak or rissole, Sir?"
Diner: "What's the difference?"
Waiter: "About five days, Sir."

* * * *

Boy: "What is your business, Sir?"
Visitor: "I want to see your Master."
Boy: "What is it about?"
Visitor: "There's a bill . . ."
Boy: "Ah! He left yesterday for the country."
Visitor: ". . . which I have to pay him."
Boy: "But he returned this morning. Please go in, Sir."

* * * *

"I wouldn't cry like that," said Auntie to her little nephew.

"You can cry any way you like, Auntie," said the little boy, "but this is my way."

Mother: "Jimmie, run over and see how old Mrs. Smith is this morning."

Jimmie (returned): "She says it's none of your business?"

Mother: "Why, what on earth did you ask her?"

Jimmie: "Just what you said, mummy. I told her you wanted to know how old she was."

* * * *

BRAIN TEASERS

NAME THE PARTS

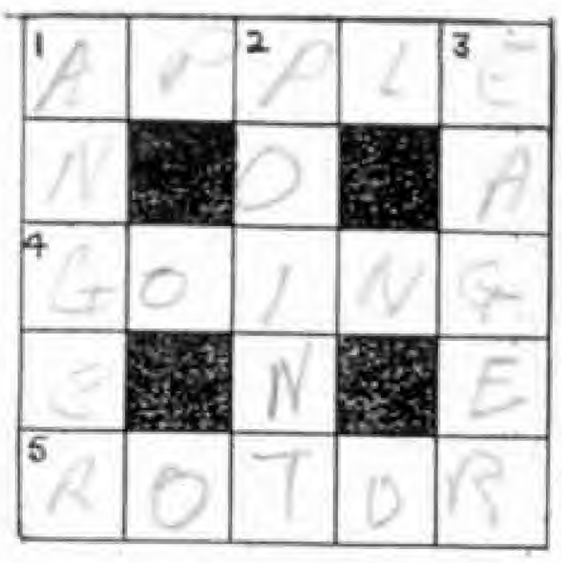
Each of the following 10 clues indicates the name of a Meccano part. Can you name the 10 parts correctly?

1. Elbow Patch.
2. Part of a Trombone.
3. Scale.
4. Enthusiast.
5. Canine's Bite.
6. Oldish Chicken.
7. Peter's flying partner.
8. One with a peculiar view.
9. And five more is over.
10. Parson's Nose.

* * * *

FIVE MINUTE CROSSWORD

See if you can solve this simple crossword in under five minutes.



CLUES

Down

1. Fury.
2. Indicate.
3. Keen.

Across

1. William Tell is a good clue.
4. Moving.
5. A turbine has one.

ANSWERS TO LAST MONTH'S PUZZLES

A Combination Lock Puzzle

The word that opened the safe was PYX.

* * * *

The Hidden Proverb

The proverb hidden in the sentence is "A stitch in time saves nine." I expect most readers managed to spot it without much trouble.

You will enjoy . . .

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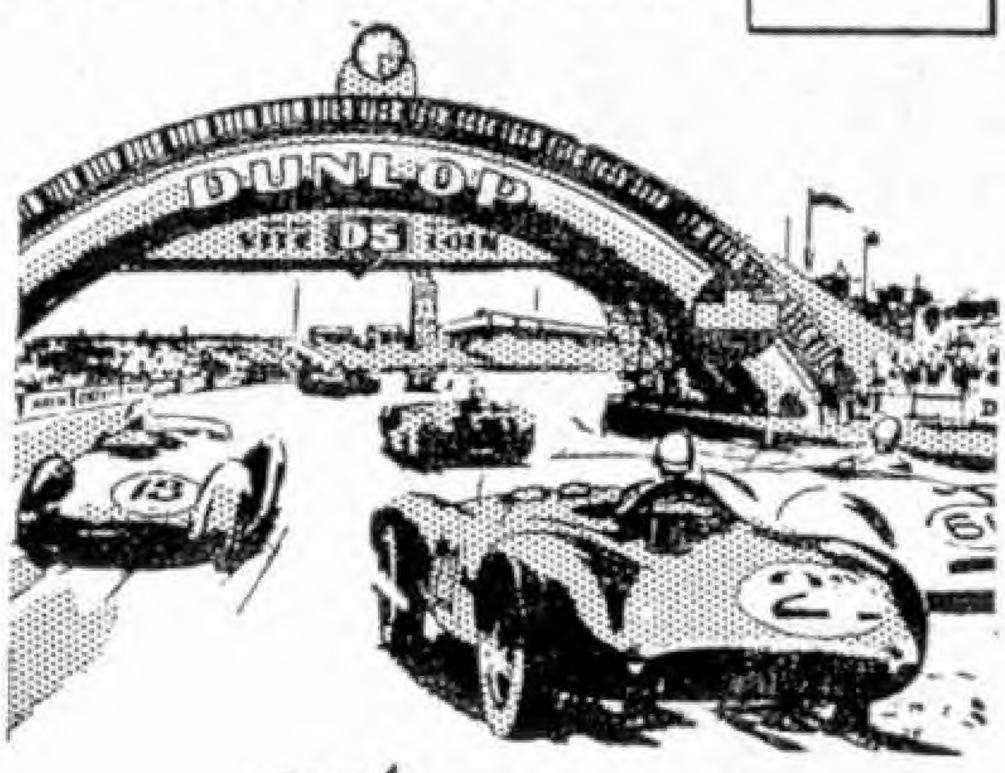
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DUNLOP

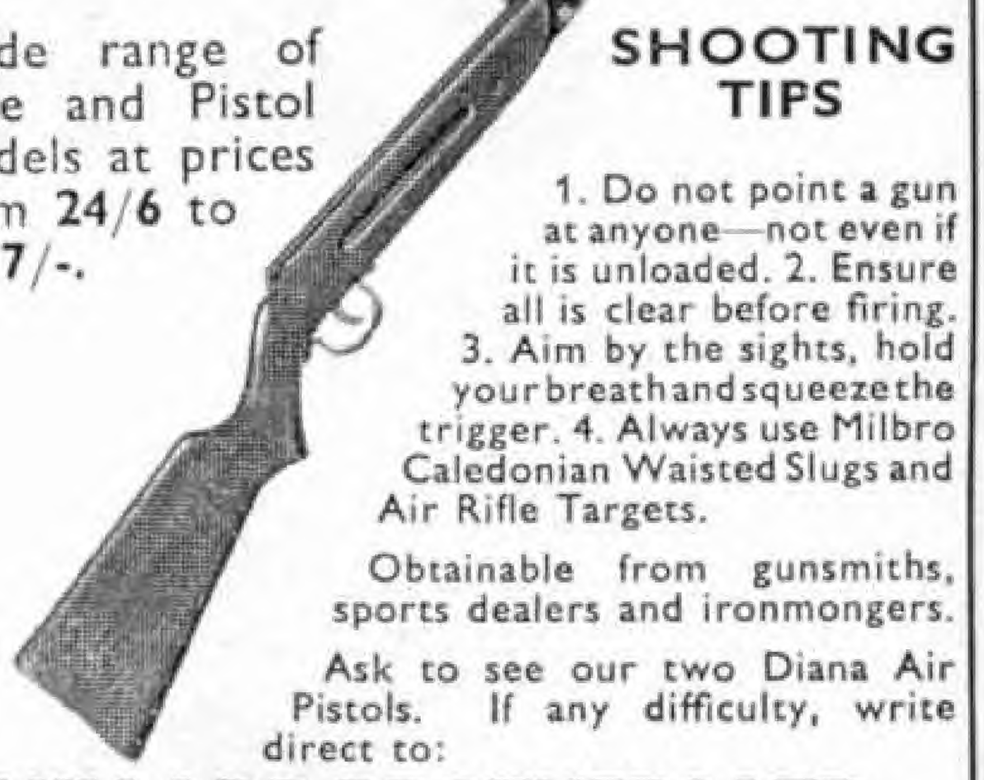
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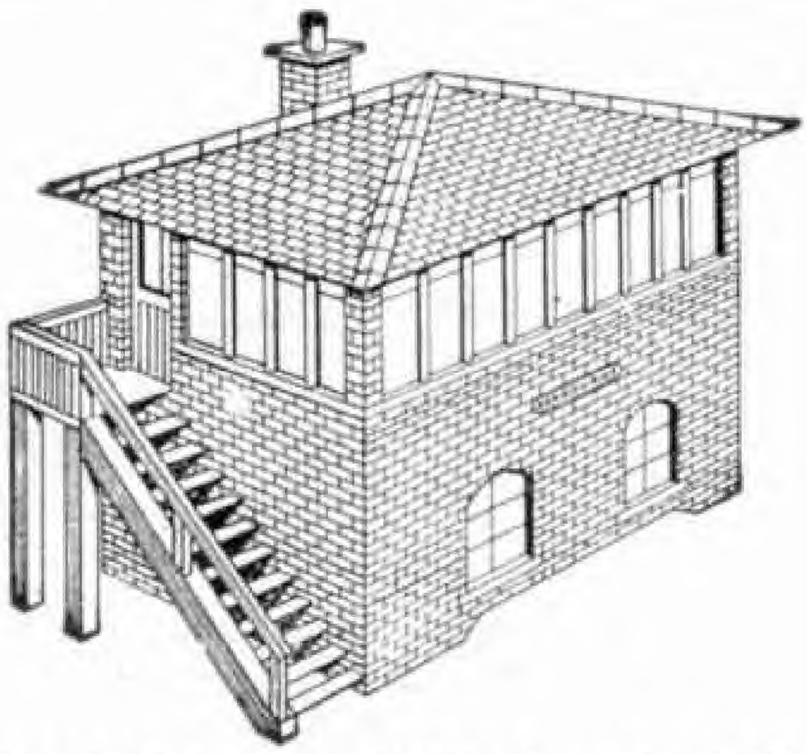
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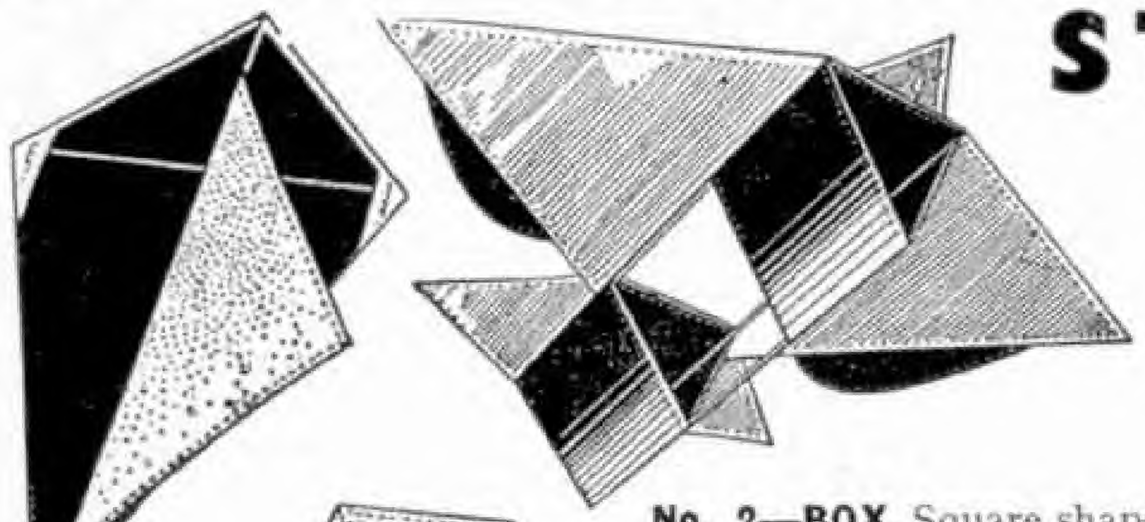
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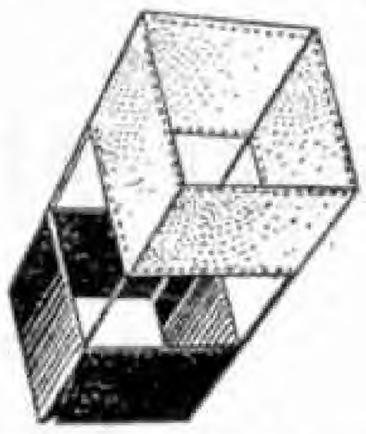
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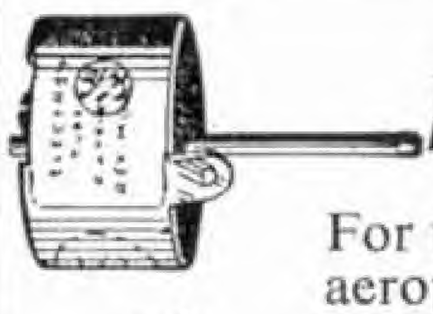
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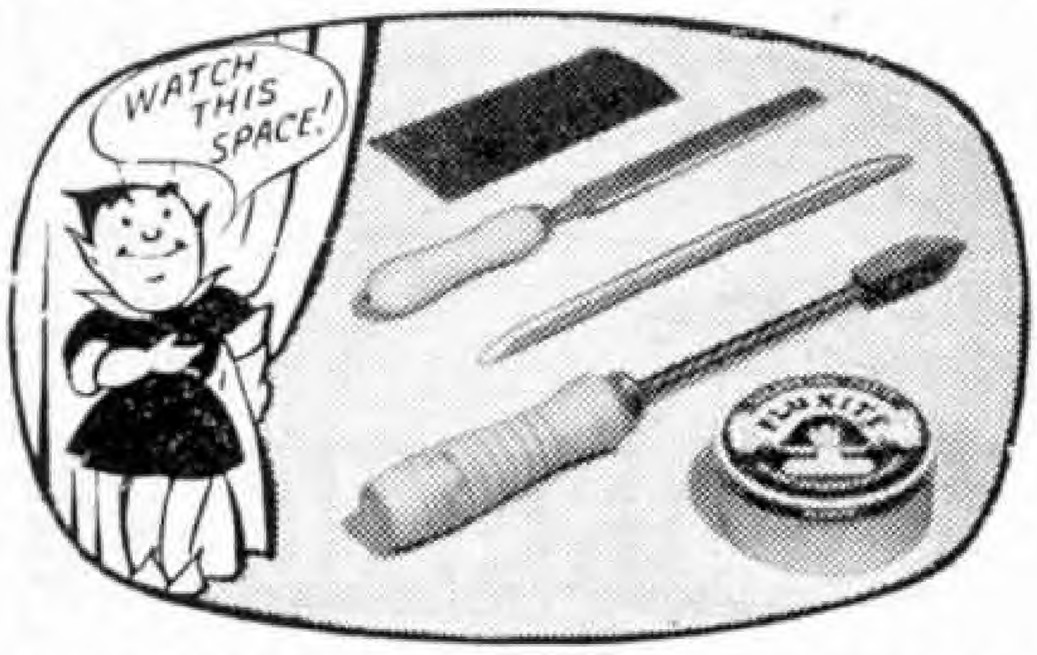
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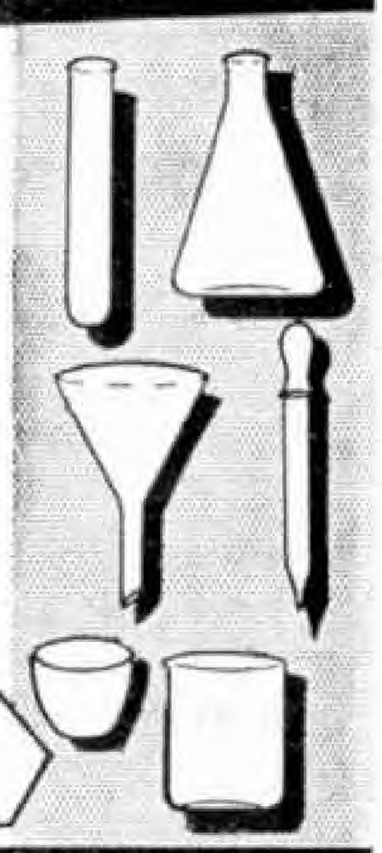
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MODEL OF THE MONTH

FUNICULAR RAILWAY

Illustrated in the March 1958 issue of the "M.M."

The Power and Reverse Unit

The E20R(S) Motor is bolted on the 12½" Angle Girders 1 and 2. A 2½" Strip, with a Double Bent Strip 3 attached, is fixed in position. Two 3½" Angle Girders and 2½" x 2½" Flat Plates are bolted to the Angle Girders 1 and 2 as shown. A 1" x 1" Angle Bracket is fixed to the Motor side, and another similar part 5 in the front of the armature shaft. A Worm Wheel is then fixed on the Motor shaft. A 6½" Rod 6 is joined to a 3" Rod to which a 57-tooth Gear Wheel is fixed. Two ½" Pinions and a 1" Gear Wheel are fixed on the 6½" Rod 6, between the Flat Plates as shown. Now place a 6½" Rod 7 journalled in the 1" x 1" Angle Bracket 5 and the Flat Plate. A 57-tooth Gear Wheel takes the drive from the ½" Pinion, and a Worm Wheel 8 drives a Gear Wheel 9 on Rod 10, which is mounted in the Double Bent Strip 3, and is held in position by Collars. A Triple Throw Eccentric is fixed to the top of the Rod 10. A 2" Strip attached to the Motor side-plate with an Angle Bracket, acts as the upper bearing. Now bolt a Crank 11 to the outside of the 2½" x 2½" Flat Plate and secure a 1½" Rod, on which is placed a loose ½" Pinion, held with a Collar against the Plate. A 5" Rod 12 has a ½" x ¾" Pinion 13 mounted on its outer end, and a 1" Gear Wheel and a ½" Pinion between the Flat Plates. Two fixed Collars 14 locate between them a loose Collar with a Threaded Pin. A Collar is used to hold the Eccentric strap on the Threaded Pin. The Pinion 13 drives a 57-tooth Gear Wheel 15 loose on a 4½" Rod 16 and a ½" Pinion 17 drives the 57-tooth Gear Wheel 18 on a 3½" Rod 19, which has a ¾" Sprocket Wheel fixed to it. The positions of the ½" Pinion and 1" Gear Wheel on Rod 12 must be adjusted so as to give a similar number of revolutions in each direction.

Lower Station and Platform

Four 9½" Angle Girders 21 are bolted to two 24½" Angle Girders 22 and then the Motor and the automatic reverse mechanism are placed in position. Subsequently the sides are filled in with 9½" x 2½" Strip Plates. The front entrance building is made from four 9½" x 2½" Strip Plates, a 4½" x 2½" Flexible Plate, two 2" x 2½" Triangular Flexible Plates, and a Wheel Disc. The entrance doorway is edged off with 5½" Strips and 2½" Curved Strips arranged as shown.

The entry platform consists of two 5½" x 2½" Flanged Plates 23 at either end and these are bolted to a 5½" x 2½" Flat Plate. Another 5½" x 2½" Flanged Plate 24 is fixed in the centre. A 12½" Strip 25 supports the barrier, which consists of 2½" x 1½" Flexible Plates and Strips. Two more 2½" x 1½" Flexible Plates 26 are fixed in place using Angle Brackets and Strips for the purpose. A 12½" Strip 27 supports the roof, which is built from 12½" x 2½" Strip Plates, with a 12½" Angle Girder forming the apex. The roof ends are filled in with 2" x 2½" Triangular Flexible Plates, and a 2" Slotted Strip, extended with a 1½" Strip. The sides of the steps leading to the platform are made from two 5½" Strips each extended by a 2" Slotted Strip and joined across with 3½" x ½" Double Angle Strips. The ladder is attached to the framework and the platform by means of Angle Brackets.

Upper Landing Platform and the Base

The Angle Girders 22 are lengthened by 18½" Angle Girders 28 overlapped seven holes. Four 24½" Angle Girders 29 are bolted to these Angle Girders and are braced in the centre with two 5½" x 2½" Flexible Plates and one 12½" Strip Plate, which are edged with 5½" and 12½" Strips and AngleGirders.

The upper platform is built up from four 5½" x 3½" Flat Plates bolted

to two 5½" Angle Girders 30 and 12½" Angle Girders 31. The sides and back are filled in with Flexible Plates of suitable size. The roof and barriers are similar to those of the lower platform.

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The Rails and Sides of the Runway.

For each side of the runway a 12½" Angle Girder and a 24½" Angle Girder are joined together, overlapping six holes. To these two 12½" and one 9½" Braced Girder are bolted. The runway is supported by a 2", 7½" and a 14" compound Strip on each side. These are bolted at their lower ends to Girders 22. The lower end of the runway is fastened to the Angle Girder 21 by a 2½" Braced Girder, and a 1½" Strip holds the Braced Girder at the top to Angle Girder 29. Each of the runway sides is similar in construction and they are connected together with four 12½" Angle Girders 32. Each of the carriage rails is made from a 24½" Angle Girder joined to a 9½" by a 2" Strip, and the rail is bolted to the Angle Girders 32. Two Angle Brackets 33 are bolted in the third hole from the bottom of each rail. A Rod with a 1" Sprocket Wheel on it is mounted in the Angle Brackets 33.

The Sprocket Wheel 20 drives a ¾" Sprocket Wheel on Rod 34. Two Angle Brackets 33 are bolted in the second hole from the top of the rail and on a Rod journalled in these a ½" Pinion 36 and a 1" Sprocket Wheel are fixed. A 6½" Rod 38 carries a 1" Sprocket 39 and a ½" Pinion 37, which engages with Pinion 36. Endless chains are placed over the Sprocket Wheels at the upper and lower ends of the rails.

The Cars

The roof and floor of the cars are alike, and are built from one 5½" x 3½" Flat Plate, a 7½" Strip, two 3½" x ½" Double Angle Strips, and four Semi-Circular Plates. The sides and ends are formed from 5½" x 2½" Flexible Plates and two Curved Plates 1 11/16" radius strengthened with Strips and Formed Slotted Strips

Two 2" Strips 40 and two 5½" Strips 41 form the bearings for the rail wheels 42. These wheels 42 are ½" loose Pulley Wheels with ¾" Washers on each side and are held in place on the Rods with Collars. A 3½" x ½" Double Angle Strip 43 supports the Strips 41. Now bolt a 3" and a 5½" Strip together, and mount it centrally on the car axles. An Angle Bracket is to be bolted in the centre of the 5½" Strip. Now set the reversing mechanism so that the 1" Gear Wheels are just coming out of mesh, and then fasten one car to the bottom of the endless chain by means of a bifurcated paper clip (or a 6 B.A. bolt and nut) passed through the Angle Bracket on the 5½" Strip and a link of the Sprocket Chain. Fasten the other carat the top with 6 B.A. Nuts and Bolts, put through the Angle Bracket 44 and the chain, or tie with cord. The reverse mechanism must so be adjusted as to take the cars to each platform.

Parts required to build the model Funicular Railway:- 8 of No. 1; 5 of No. 1B; 32 of No. 2; 17 of No. 2A; 3 of No. 3; 2 of No. 4; 23 of No. 5; 19 of No. 6; 16 of No. 6A; 12 of No. 7; 2 of No. 7A; 15 of No. 8; 8 of No. 8A; 2 of No. 9; 2 of No. 9B; 8 of No, 9F; 21 of No. 12; 2 of No. 12A; 14 of No. 12C; 3 of No. 14; 4 of No. 15A; 5 of No. 15B; 1 of No. 16; 2 of No. 16B; 1 of No. 18A; 1 of No. 22; 8 of No. 23; 1 of No. 24A; 7 of No. 26; 1 of No. 26B; 5 of No. 27A; 2 of No. 31; 2 of No. 32; 427 of No. 37A; 421 of No. 37B; 91 of No. 38; 16 of No.38D; 1 of No. 45; 16 of No. 48B; 2 of No. 52; 5 of No. 52A; 1 of No. 53A; 4 of No. 55A; 42 of No. 59; 1 of No. 62; 1 of No. 63; 2 of No. 70; 2of No. 72; 3 of No. 90; 139" of No. 94; 4 of No. 96; 2 of No. 96A; 2 of No. 98; 4 of No. 99; 2 of No. 99A; 2 of No. 111; 8 of No. 111C; 1 of No. 115; 1 of No. 120B; 1 of No. 130; 1 of No. 142C 12 of No. 188; 1 of No. 191; 10 of No. 192; 8 of No. 196; 11 of No. 197; 8 of No. 200; 16 of No.214; 24 of No. 215; 10 of No. 222; 1 E20R(S) Motor.